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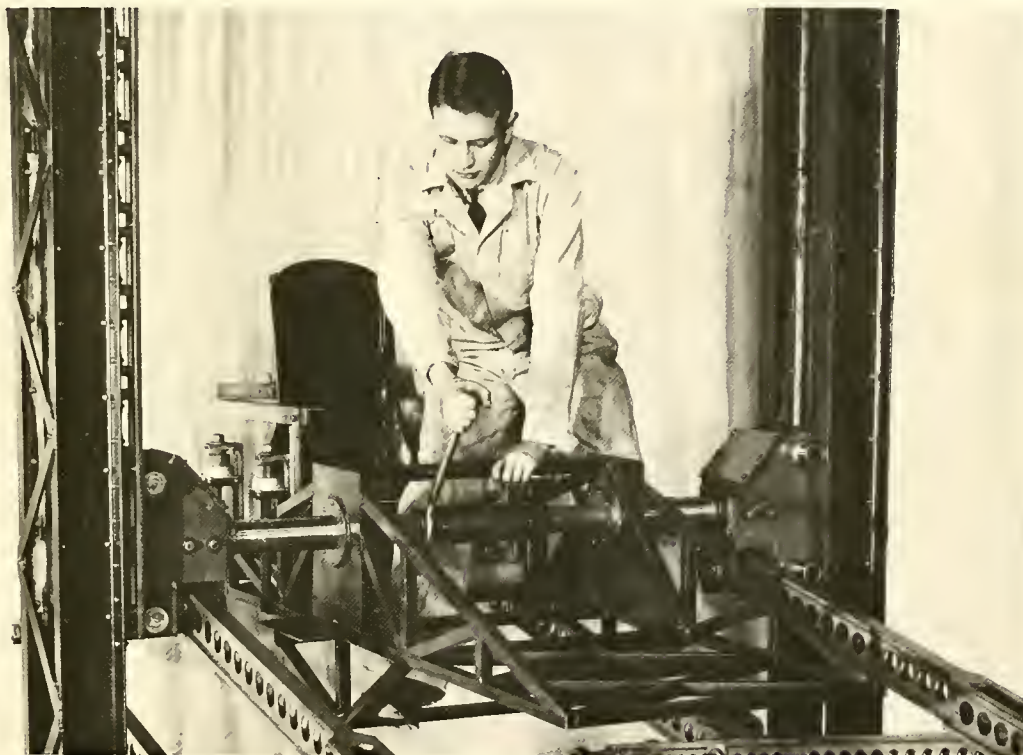
MEDICAL JOURNAL

for doctors and their patients

The Official Journal of the NORTH CAROLINA MEDICAL SOCIETY

July 1985, Volume 46, Number 7

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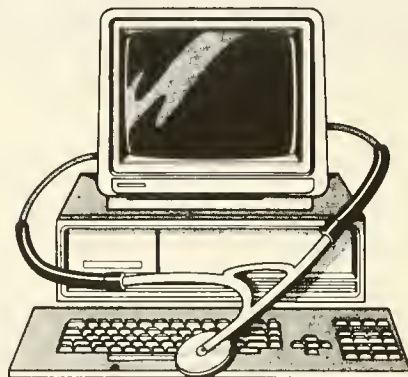
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Cover photo taken by Jeremy Sugarman at the hotel Europa

volume 46, no. 7, July 1985

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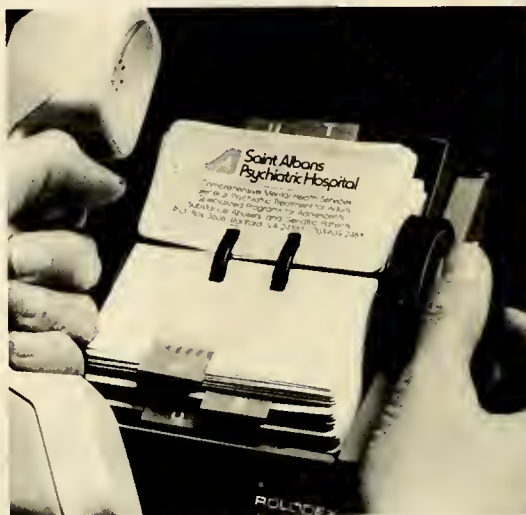
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A Dermatologist Picks Up the Marbles

Claude S. Burton, M.D.

"In the fields of observation [in this instance, a field of poison ivy], chance favors only the mind that is prepared."

*Quoted by René Vallery-Radot in
The Life of Pasteur (1927)*

"I see no more than you do, but I have trained myself to notice what I see."
Sherlock Holmes

A young lady presented to our emergency room with dermatitis of both feet and distal lower extremities. The left ankle was swollen and hurt with motion. The rash was fire engine red and rare petechiae were scattered here and there in the erythematous lesions. No obvious vesicles were noted but the rash was very wet to touch.

Petechiae and arthritis suggested collagen vascular disease. An ankle film was obtained, laboratory studies were ordered, and preparations were made for joint aspiration. I was asked to see the patient.

The moist, fire-engine red erythema suggested a spongiotic process such as allergic contact dermatitis rather than a vasculitic process. Though there was pain on flexion of the ankle, pounding on the heel and pressure on the joint space produced no symptoms, suggesting that the discomfort was in the skin, not the joint.

History revealed the patient had been target shooting in the woods over the weekend approximately 24-48 hours before the rash appeared. Due to the warm weather, she had been wearing open sandals.

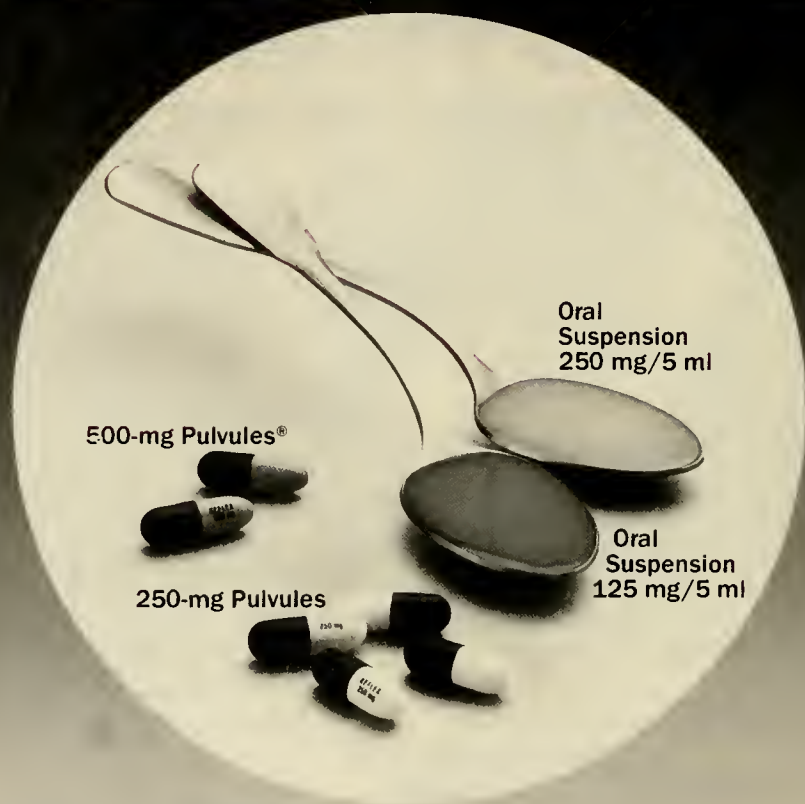
My diagnosis of poison ivy dermatitis met with some suspicion in the emergency room. Having learned from Alexander Fisher that the toxic catecholamines in poison ivy oxidize to an indelible black ink, I examined her jeans and asked if she were wearing them on her shooting expedition. She said that this was not the pair and when I explained why I asked, she and her girlfriend said that the pair she had been wearing while shooting over the weekend were covered with black spots distally which they had assumed to be tar! Vigorous washings had failed to remove the stains.

Her testimony convinced the consulting physicians; the laboratory studies and joint aspiration were deferred. She was treated with a short prednisone taper and calamine lotion topically with prompt relief.

Catecholamines oxidize to indelible black inks, a discovery used widely in the laundry business. India marking ink is a good example. The catechols of poison ivy also do this, particularly when the humidity is low since water rapidly hydrolyzes the molecule. When the black oxidized catechol is found on the skin or clothing of a patient with allergic contact dermatitis, one can be fairly certain of the offending agent.

From the Division of Dermatology, Duke University Medical Center, Durham 27710.

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Hemochromatosis — An Unusual Arthropathy

John R. Rice, M.D.

• *After 12 years with arthritis, the patient is found to have hemochromatosis.*

THE day-to-day clinical practice of medicine is at times tedious and occasionally graced with the exciting or the unusual. The possibility of finding an exotic disease among the mundane, the pearl among the oysters, is part of the fun and the challenge of our profession as illustrated by the following case.

A 53-year-old white male insurance broker presented with a complaint of "arthritis" of twelve years duration. He had been in excellent general health until 1972 at which time he developed acute, painful swelling in the right knee. The knee was aspirated, without examination of the joint fluid for crystals, and injected with corticosteroids with immediate relief of symptoms. Hyperuricemia was found on laboratory testing, a diagnosis of gout was presumed and allopurinol therapy was initiated. One year later an effusion developed in the left knee and was treated in similar fashion with satisfactory results.

Five years after the episodes of knee effusion, painful swelling developed in the metacarpophalangeal joints of the middle and ring fingers on his right hand. The pain responded initially to local injection but recurred and persisted in spite of attempts at therapy with allopurinol, aspirin and various non-steroidal anti-inflammatory agents. Allopurinol was eventually discontinued. In 1982, ten years after the onset of symptoms, his ankles became somewhat swollen and painful, persistent knee stiffness became an increasing problem and the patient complained of stiffness and discomfort in the left hand in a pattern similar to that seen in the right.

Laboratory studies by his physicians at home had included a rheumatoid factor of 1:1280 (RA latex) and mild elevations of liver function studies were attributed to low-grade alcohol consumption. Other than a history of recurring prostatitis and non-specific urethritis in the past there was no history to specifically suggest rheumatoid arthritis, other connective tissue disease or spondyloarthritis. The patient's family history included an episode of podagra in his father and a brother with a diagnosis of hypoparathyroidism established at the Mayo Clinic.

Physical findings were normal with the exception of the joints. Minimal fullness was present over the index and middle metacarpophalangeal joints of the right more than the left hand and a suggestion of soft tissue fullness was present in the left ankle. Other peripheral joints and the

spine were unremarkable. There were no subcutaneous nodules present and no skin or nail findings to suggest psoriasis.

Laboratory studies usually obtained in patients with arthritis were normal, including a repeat rheumatoid factor. The serum uric acid had been reduced to 1.8 mgm% by aspirin. Liver function studies were remarkable for a slight elevation in SGOT and SGPT.

Hand x-rays (see figure 1) showed small osteophytes at the metacarpophalangeal articulations of the second and third digits bilaterally. Slight joint space narrowing was present at the third metacarpophalangeal joint bilaterally with a suggestion of associated increase in subchondral bone density in the respective proximal phalanges. Ankle films (not shown) showed minimal degenerative change at the calcaneonavicular articulations bilaterally; the subtalar and tibiotalar joints were normal. Knee films were not felt to be indicated.

Subsequent studies included a serum ferritin value greater than 2000 ng% (normal range in adult males 31-294 ng%) and a serum iron of 238 mcg% with a total iron-binding capacity of 240 mcg%. Liver biopsy (see figure 2) showed marked iron deposition within hepatocytes, most prominent in the portal areas, with only sparse amounts of iron within Kupffer cells. The changes were consistent with hemochromatosis. At the time of diagnosis there was no skin hyperpigmentation and no evidence of endocrine or myocardial dysfunction. Therapy was initiated with biweekly phlebotomy and non-steroidal anti-inflammatory drugs were continued in hopes of minimizing joint complaints.

Discussion

Approximately 50% of patients with hemochromatosis develop an arthropathy in conjunction with other manifestations of the disease.¹ Joint symptoms most commonly present simultaneously with other manifestations of the disease but may occur a decade or more in advance of other symptoms.^{2, 3} Clinical and radiological features of the disease are distinctive enough to allow the alert physician to suspect the diagnosis of hemochromatosis and order tests to establish the diagnosis.

Hemochromatosis is an uncommon disorder characterized by excessive iron absorption in the gut. Evidence points to an autosomal recessive mode of inheritance with an estimated gene frequency of 0.056.⁴ Clinical manifestations develop as a result of the gradual accumulation of iron

From the Division of Rheumatology and Immunology, Duke University School of Medicine, Durham 27710.

in the parenchymal cells of various organs including the liver, endocrine organs, skin, joints and heart.^{5, 6} Approximately 90% of clinically apparent disease develops in men; menstrual blood loss has been postulated to delay or ameliorate the development of recognizable disease in women. Alcohol consumption or heavy dietary ingestion of iron may hasten the onset of symptoms. Most patients present between 40 and 60 years of age with bronze or slate-gray cutaneous hyperpigmentation, cirrhosis and endocrine dysfunction, including diabetes and hypogonadism. Myocardial involvement may produce congestive heart failure. Diagnosis is made by liver biopsy showing, as in the case described above, an abnormal accumulation of iron in hepatocytes. Biopsy late in the course of untreated disease may show cirrhosis. Management centers on the reduction of iron stores through regular phlebotomy with a goal of normalizing serum iron levels and maintaining a hemoglobin level of approximately 11 gm%.⁷ If initiated at an early stage of the disease, therapy may prevent hepatic, endocrine and myocardial dysfunction or improve function in affected organs.

The arthropathy of hemochromatosis has been well described by several authors^{1, 8-11} since the original report by Schumacher in 1964.¹² The characteristic clinical picture is essentially that of osteoarthritis with an atypical and characteristic pattern.⁸ Involvement of the 2nd and 3rd metacarpophalangeal joints with loss of joint space, subchondral sclerosis and osteophyte formation is the single most suggestive finding. Subcortical cyst-like changes may occur and diffuse osteopenia may develop but the characteristic periarticular osteoporosis of rheumatoid and other inflammatory forms of arthritis is lacking as are marginal erosions. Hypertrophic arthritis of the interphalangeal joints, lacking entirely in some patients, is indistinguishable from other more common forms of degenerative joint disease but tends to involve the proximal rather than the distal interphalangeal joints. Large joints including the wrists, elbows, shoulders, hips, knees and ankles may be

affected although the earliest changes are usually seen in the small joints of the hand.

The arthropathy of hemochromatosis is similar in many respects to that seen in calcium pyrophosphate deposition disease (CPPD), both the "idiopathic" form and that seen in association with a variety of metabolic disorders. In approximately 50% of patients with arthritis and hemochromatosis, chondrocalcinosis may be found on x-ray in locations characteristic of CPPD — the hyaline and fibrocartilage in the knees, the triangular cartilage distal to the ulnar styloid, the fibrocartilage at the symphysis pubis and occasionally in the hips or intervertebral discs.^{8, 9} Not all of these patients have joint symptoms. Acute episodes of pseudogout may occur, most frequently in the knees, and hemochromatosis should be part of the differential diagnosis of any patient with either chondrocalcinosis or pseudogout even in the absence of obvious changes in the small hand joints.

The pathophysiology of the joint disease in hemochromatosis has not been well defined. Iron deposition in the synovium is a relatively non-specific finding, having been described in rheumatoid arthritis, transfusion hemosiderosis, hemophilia, pigmented villonodular synovitis and other disorders.⁸ Iron accumulation in hemochromatosis occurs, however, in Type B synoviocytes and possibly in chondrocytes in distinction from the above listed diseases in which the deposits accumulate primarily in the phagocytic Type A synovial cells. The occurrence of similar joint disease in experimental animals given a sustained iron overload and in some patients with transfusion hemosiderosis supports the putative role of excessive iron stores in producing the arthropathy of hemochromatosis.⁹

Therapy, as noted above, consists of a removal of excessive iron stores via repeated phlebotomy. Prevention of or improvement in organ dysfunction can be achieved with appropriate management but there is little effect on the associated joint diseases.¹¹ Loss of chondrocytes, cells with little or no regenerative properties, as a result of the



Figure 1. X-rays of the right hand showing small osteophytes at the second and third metacarpophalangeal joints (arrows) with narrowing of the third metacarpophalangeal joint space.

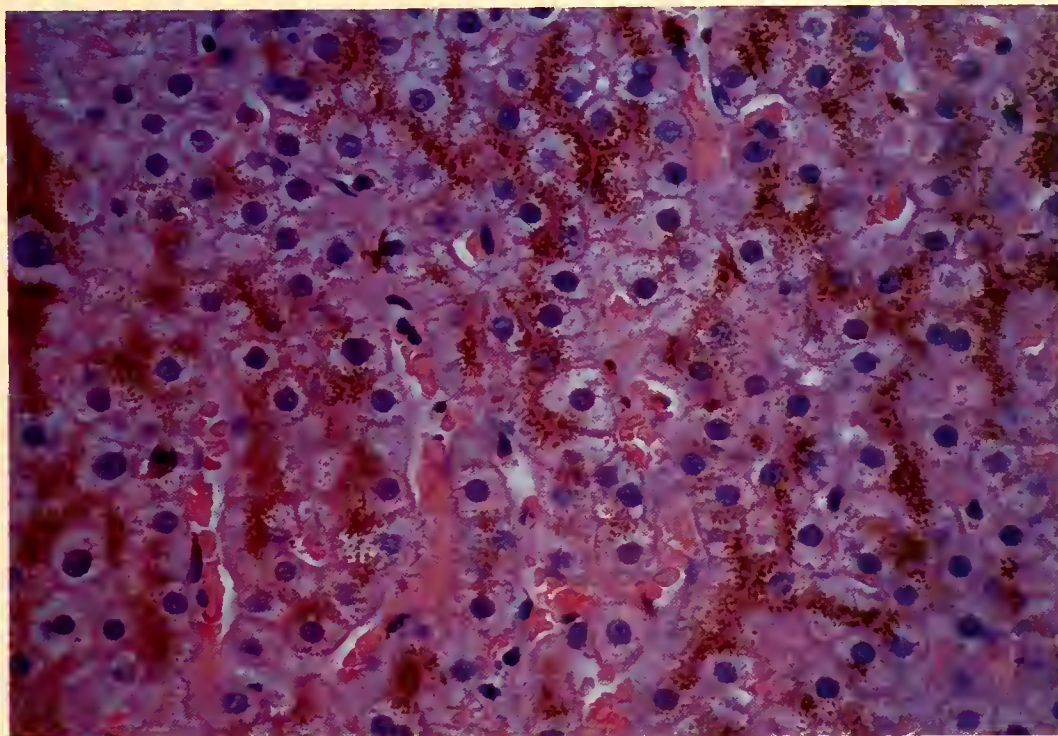


Figure 2. Liver biopsy showing massive accumulation of iron in hepatocytes with sparing of Kupffer cells. Special stains (not shown) confirmed the ferrous nature of the deposits.

toxic effects of iron may account in part for this observation. Iron inhibition of pyrophosphatase has been proposed as an explanation for the occurrence of chondrocalcinosis and pseudogout in some patients.¹³

References

1. Dymock IW, Hamilton EBD, Laws JW, et al. Arthropathy of hemochromatosis. *Ann Rheum Dis* 1970;29:469-476.
2. M'Seffar A, Fornasier VL, Fox IH. Arthropathy as the major clinical indicator of occult iron storage disease. *JAMA* 1977;238:1825-1828.
3. Rosner IA, Askari AD, McLaren GD, et al. Arthropathy, hypouricemia and normal serum iron studies in hereditary hemochromatosis. *Am J Med* 1981;70:870-874.
4. Cartwright GE, Edwards CQ, Kravitz K, et al. Hereditary hemochromatosis. *N Engl J Med* 1979;310:175-179.
5. Finch SC, Finch SA. Idiopathic hemochromatosis, an iron storage disease. *Med* 1955;34:381-430.
6. Milder SM, Cook JD, Finch CA. Idiopathic hemochromatosis, an interim report. *Med* 1980;59:34-49.
7. Frey WG, Milne J, Johnson GB, et al. Management of familial hemochromatosis. *N Engl J Med* 1961;265:7-12.
8. Hirsch JH, Killien FC, Troupin RH. The arthropathy of hemochromatosis. *Radiology* 1976;118:591-596.
9. Twersky J. Joint changes in idiopathic hemochromatosis. *Am J Roentgenol* 1975;124:139-144.
10. Askari AD, Muir WA, Rosner IA, et al. Arthritis of hemochromatosis. Clinical spectrum, relation to histocompatibility antigens and effectiveness of early phlebotomy. *Am J Med* 1983;75:957-965.
11. Fox IH. Arthropathy with iron storage disease. In Kelly WN, Harris ED, Ruddy S, et al (eds). *Textbook of Rheumatology*. W.B. Saunders Co., Philadelphia, 1981:1538-1544.
12. Schumacher HR Jr. Hemochromatosis and arthritis. *Arthritis Rheum* 1964;7:41-50.
13. McCarty DJ, Pepe PF, Solomon SD et al. Inhibition of human erythrocyte pyrophosphatase activity by calcium, cupric and ferrous ions (abstr.). *Arthritis Rheum* 1970;13:336.

Intermittent Claudication Due to Cauda Equina Compression

James O. McNamara, M.D., Lori Pierce, M.D. and Douglas Slater, M.D.

- *A patient with pain in his legs when he stood, relieved completely when he sat, is cured.*

We recently evaluated a 60-year-old man with an intriguing constellation of symptoms. He was well until one year previously when he developed dull aching pain in his hips precipitated by walking 6-9 blocks. The pain remitted with rest. During the following three months he noticed the pain after walking shorter distances and eventually after merely standing for as long as one minute. The pain would invariably remit within 20-30 seconds after he sat down. The pain was always bilateral, occasionally progressed from the hips to the thighs and even the calves. On one occasion the patient continued to walk in spite of the pain and experienced weakness of both legs and fell. There was no history of pain or weakness elsewhere, nor of bowel or bladder incontinence. There was no history of hypertension, diabetes, or myocardial infarction. The past medical history, family history, and review of systems provided no information essential to understanding the present illness.

The patient's vital signs were within normal limits. His general physical and neurological examinations were also within normal limits. In particular, all of his pulses were full including the femoral, popliteal, posterior tibial, and dorsalis pedis pulses. No bruits were detected. The skin of the lower extremities showed no atrophic changes. Anal sphincter tone was normal. Motor and sensory examinations of the lower extremities were also within normal limits. His muscle stretch reflexes were 2+ and symmetrical and no Babinski signs were present. The responses to both Patrick's maneuver and straight leg raising were normal. At the request of the physician, the patient walked sufficiently far to precipitate his pain; the vascular and neurologic examinations of the lower extremities remained within normal limits in the presence of the pain.

The presence of pain induced by standing and its relief by change in posture together with the negative findings on the vascular and neurologic examinations suggested the diagnosis of intermittent claudication due to compression of the cauda equina. A CT scan of the lumbosacral spine disclosed a spinal stenosis mainly at L3-4; the stenosis was due to narrowing of the bony canal with hypertrophy of the ligamentum flavum posteriorly, and a marked posterior bulging of the L3-4 intervertebral disc anterior to the canal.

A myelogram was performed after introduction of metrizamide at the L1-2 interspace. The caudal flow of metrizamide was completely blocked at the L3-4 interspace with the patient in the standing position. The contrast did flow caudally past the block after the patient was placed in the sitting position.

The radiographic findings were confirmed at the time of surgery. A lumbar laminectomy was performed at L3-4 together with removal of the intervertebral disc. The patient's symptoms remitted promptly after surgery.

The term "claudication" is derived from the Latin verb, *claudicare*, which means to limp. The intermittent nature of the symptoms is striking and crucial to the diagnosis, and therefore the term *intermittent* claudication seems appropriate. The vast majority of cases of intermittent claudication of nervous system origin (versus vascular intermittent claudication) are related to compression of the cauda equina. Thus the term "intermittent claudication due to cauda equina compression" seems the most appropriate title of this syndrome and preferable to the popular alternative, "neurogenic claudication."

The precise pathophysiology of the symptoms is unknown. The striking relationship of the symptoms to posture and the stereotyped temporal resolution of symptoms following change in posture are critical clues not only to a neurogenic rather than a vascular origin, but also to the underlying pathophysiology. A variety of degenerative bony and cartilaginous abnormalities superimposed on a developmentally narrow canal (i.e., lumbar spinal stenosis) combine to markedly narrow the lumbar spinal canal. The erect posture presumably precipitates the symptoms because the sagittal diameter of the lumbar canal normally narrows in the extended position and widens in the flexed position. The interaction of physiologic narrowing related to posture together with the pathologic narrowing due to the factors listed above is sufficient to compress the cauda equina. Perhaps compression of the arterial or venous circulation of the root together with the increased vascular demands of nerve tissue (related to exercise or maintenance of the erect position) may interact to produce the symptoms. In any event, surgical decompression leads to prompt resolution of the symptoms in properly diagnosed cases. This outcome provides a happy ending for the patient, the diagnostician, and the surgeon.

From the Division of Neurology, Duke University Medical Center, Durham 27710.

An Unusual Cause of Recurrent Transient Neurologic Deficit

Marvin P. Rozear, M.D. and Walter G. Wolfe, M.D.

• *A rheumatologist uncovers a rare cardiac condition in a woman with TIAs.*

A fifty-year-old, right-handed bookkeeper was in excellent health until the first week in January 1985. While changing clothes she noted an aching pain in her left arm followed by a rash on the palm and forefinger, which did not blanch. A few days later while talking on the phone, her left hand felt weak and clumsy with tingling which spread into the leg, lasted several minutes and abated spontaneously. The next day she had a splotchy red rash on her hand again. The following week while eating breakfast her entire right side felt numb and weak, her speech became slurred, and she had difficulty getting the right word out for 45 minutes. She had difficulty walking for several hours. The next day she had a slight rash on her right hand. Her internist obtained an EKG, head CT, and an M-mode echocardiogram. She was diagnosed as having vasculitis and was started on Dipyridole and aspirin. A neurologist examined her and agreed with the treatment. A few days later while dressing she noted "zigzag lines" to her left for a few seconds followed by a left-sided headache. This recurred. She noted rash in both hands which came and went, lasting for a few days. On the day of admission she was eating breakfast when she suddenly passed out without warning, convulsive activity or any other specific features. At her local hospital shortly thereafter her examination was normal and she was transferred to Duke Hospital. Her past medical history was unremarkable. She was a nonsmoker and had had no prior symptoms of any cardiac, vascular, pulmonary or neurologic disease.

On examination blood pressure was 110/60 in both arms.

Pulse was 70 and regular. She was afebrile. General physical exam was normal except for a cluster of nontender, nonblanching erythematous spots measuring three to four millimeters over the ulnar border of the left palm. Neurologic exam showed mild clumsiness of the left fingers and no other significant findings.

Shortly after the admission she experienced another spell of clumsiness of her right hand and had difficulty speaking which lasted one to two minutes. The rheumatology consultant recommended a 2-D echocardiogram which revealed a 2 x 3 x 2 cm left atrial mass with gelatinous consistency, compatible with a left atrial myxoma.

Because she had experienced another TIA on that day, surgery was recommended immediately, and the myxoma was removed within 6 hours of its diagnosis. The patient tolerated the procedure well, and was discharged with no further difficulties.

Frequently in the evaluation of cerebrovascular insufficiency the workup focuses entirely on the carotid system. There is some reason for this, as carotid stenosis/ulceration is certainly the most common treatable cause for carotid system TIA. However, when attacks involve both hemispheres intermittently in an otherwise healthy, relatively young, nonsmoking person with or without carotid bruits, other causes must be sought. Cerebral vasculitis is certainly one of these rare causes of cerebrovascular insufficiency.

Atrial myxoma is among the rarest of causes of cerebrovascular insufficiency. In fact it is so rare that some have stated that in a patient with TIAs, if the cardiac exam is normal, echocardiography is not cost effective in the workup. The proponents of this type of thinking might have difficulty convincing this patient or her family of this philosophy.

From the Division of Neurology and Department of Surgery, Duke University Medical Center, Durham 27710.

A defense against cancer can be cooked up in your kitchen.



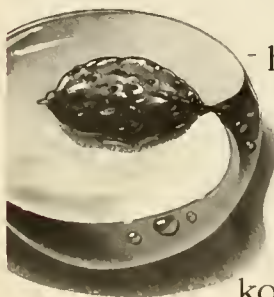
Fruits, vegetables, and whole-grain cereals such as oatmeal, bran and wheat may help lower the risk of colorectal cancer.

Foods high in fats, salt- or nitrite-cured foods like ham, and



There is evidence that diet and cancer are related. Some foods may promote cancer, while others may protect you from it.

Foods related to lowering the risk of cancer of the larynx and esophagus all have high amounts of carotene, a form of Vitamin A which is in cantaloupes, peaches, broccoli, spinach, all dark green leafy vegetables, sweet potatoes, carrots, pumpkin, winter squash and tomatoes, citrus fruits and brussels sprouts.



Foods that may help reduce the risk of gastrointestinal and respiratory tract cancer are cabbage, broccoli, brussels sprouts, kohlrabi, cauliflower.

fish and types of sausages smoked by traditional methods should be eaten in moderation.

Be moderate in consumption of alcohol also.

A good rule of thumb is cut down on fat and don't be fat.

Weight reduction may lower cancer risk. Our 12-year study of nearly a million Americans uncovered high cancer risks particularly among people 40% or more overweight.

Now, more than ever, we know you can cook up your own defense against cancer. So eat healthy and be healthy.

No one faces cancer alone.



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**Unsurpassed flexibility
in nitrate therapy.**



SORBITRATE[®]

(ISOSORBIDE DINITRATE)

Please consult full prescribing information before use. A summary follows:

INDICATIONS AND USAGE: SORBITRATE (isosorbide dinitrate) is indicated for the treatment and prevention of angina pectoris. All dosage forms of isosorbide dinitrate may be used prophylactically to decrease frequency and severity of anginal attacks and can be expected to decrease the need for sublingual nitroglycerin.

The sublingual and chewable forms of the drug are indicated for acute prophylaxis of angina pectoris when taken a few minutes before situations likely to provoke anginal attacks. Because of a slower onset of effect, the oral forms of isosorbide dinitrate are not indicated for acute prophylaxis.

CONTRAINDICATIONS: SORBITRATE is contraindicated in patients who have shown purported hypersensitivity or idiosyncrasy to it or other nitrates or nitrites. Epinephrine and related compounds are ineffective in reversing the severe hypotensive events associated with overdose and are contraindicated in this situation.

WARNINGS: The benefits of SORBITRATE during the early days of an acute myocardial infarction have not been established. If one elects to use organic nitrates in early infarction, hemodynamic monitoring and frequent clinical assessment should be used because of the potential deleterious effects of hypotension.

PRECAUTIONS: General: Severe hypotensive response, particularly with upright posture, may occur with even small doses of SORBITRATE. The drug should therefore be used with caution in subjects who may have blood volume depletion from diuretic therapy or in subjects who have low systolic blood pressure (eg, below 90 mm Hg). Paradoxical bradycardia and increased angina pectoris may accompany nitrate-induced hypotension. Nitrate therapy may aggravate the angina caused by hypertrophic cardiomyopathy.

Marked symptomatic, orthostatic hypotension has been reported when calcium channel blockers and organic nitrates were used in combination. Dose adjustment of either class of agents may be necessary.

Tolerance to this drug and cross-tolerance to other nitrates and nitrites may occur. Tolerance to the vascular and antianginal effects of isosorbide dinitrate or nitroglycerin has been demonstrated in clinical trials, experience through occupational exposure, and in isolated tissue experiments in the laboratory. The importance of tolerance to the appropriate use of isosorbide dinitrate in the management of patients with angina pectoris has not been determined. However, one clinical trial using treadmill exercise tolerance (as an endpoint) found an 8-hour duration of action of oral isosorbide dinitrate following the first dose (after a 2-week placebo washout) and only a 2-hour duration of effect of the same dose after 1 week of repetitive dosing at conventional dosing intervals. On the other hand, several trials have been able to differentiate isosorbide dinitrate from placebo after 4 weeks of therapy and, in open trials, an effect seems detectable for as long as several months.

Tolerance clearly occurs in industrial workers continuously exposed to nitroglycerin. Moreover, physical dependence also occurs since chest pain, acute myocardial infarction, and even sudden death have occurred during temporary withdrawal of nitroglycerin from the workers. In clinical trials in angina patients, there are reports of anginal attacks being more easily provoked and of rebound in the hemodynamic effects soon after nitrate withdrawal. The relative importance of these observations to the routine, clinical use of isosorbide dinitrate is not known. However, it seems prudent to gradually withdraw patients from isosorbide dinitrate when the therapy is being terminated, rather than stopping the drug abruptly.

Information for Patients: Headache may occur during initial therapy with SORBITRATE. Headache is usually relieved by the use of standard headache remedies or by lowering the dose and tends to disappear after the first week or two of use.

Drug Interactions: Alcohol may enhance any marked sensitivity to the hypotensive effect of nitrates.

Isosorbide dinitrate acts directly on vascular smooth muscle, therefore, any other agent that depends on vascular smooth muscle as the final common path can be expected to have decreased or increased effect depending on the agent.

Carcinogenesis, Mutagenesis, Impairment of Fertility: No long-term studies in animals have been performed to evaluate the carcinogenic potential of this drug. A modified two-litter reproduction study in rats fed isosorbide dinitrate at 25 or 100 mg/kg/day did not reveal any effects on fertility or gestation or any remarkable gross pathology in any parent or offspring fed isosorbide dinitrate as compared with rats fed a basal controlled diet.

Pregnancy Category C: Isosorbide dinitrate has been shown to cause a dose-related increase in embryotoxicity (increase in mummified pups) in rabbits at oral doses 35 and 150 times the maximum recommended human daily dose. There are no adequate and well-controlled studies in pregnant women. SORBITRATE should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when SORBITRATE is administered to a nursing woman.

Pediatric Use: The safety and effectiveness of SORBITRATE in children has not been established.

ADVERSE REACTIONS: Adverse reactions, particularly headache and hypotension, are dose-related. In clinical trials at various doses, the following have been observed:

Headache is the most common (reported incidence varies widely, apparently being dose-related, with an average occurrence of about 25%) adverse reaction and may be severe and persistent. Cutaneous vasodilation with flushing may occur. Transient episodes of dizziness and weakness, as well as other signs of cerebral ischemia associated with postural hypotension, may occasionally develop (the incidence of reported symptomatic hypotension ranges from 2% to 36%). An occasional individual will exhibit marked sensitivity to the hypotensive effects of nitrates and severe responses (nausea, vomiting, weakness, restlessness, pallor, perspiration, and collapse) may occur even with the usual therapeutic dose. Drug rash and/or exfoliative dermatitis may occasionally occur. Nausea and vomiting appear to be uncommon. Case reports of clinically significant methemoglobinemia are rare at conventional doses of organic nitrates. The formation of methemoglobin is dose-related and, in the case of genetic abnormalities of hemoglobin that favor methemoglobin formation, even conventional doses of organic nitrates may produce harmful concentrations of methemoglobin.

DOSE AND ADMINISTRATION: For the treatment of angina pectoris, the usual starting dose for sublingual SORBITRATE is 2.5 to 5 mg, for chewable tablets, 5 mg, for oral (swallowed) tablets, 5 to 20 mg, and for controlled-release forms, 40 mg.

SORBITRATE should be titrated upward until angina is relieved or side effects limit the dose. In ambulatory patients, the magnitude of the incremental dose increase should be guided by measurements of standing blood pressure.

The initial dosage of sublingual or chewable SORBITRATE for prophylactic therapy in angina pectoris patients is generally 5 or 10 mg every 2 to 3 hours. Adequate controlled clinical studies demonstrating the effectiveness of chronic maintenance therapy with these dosage forms have not been reported.

SORBITRATE in oral doses of 10 to 40 mg given every 6 hours or in oral controlled release doses of 40 to 80 mg given every 8 to 12 hours is generally recommended. The extent to which development of tolerance should modify the dosage program has not been defined. The oral controlled-release forms of isosorbide dinitrate should not be chewed.

DOSE FORMS AVAILABLE: Sublingual Tablets (2.5, 5, 10 mg), Chewable Tablets (5, 10 mg), Oral Tablets (5, 10, 20, 30, 40 mg), Sustained Action Tablets (40 mg).



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A Big Pain Between The Small Toes

Richard D. Goldner, M.D.

• *The editor's wife had this condition; the author's father cured it.*

MANY of today's medical and surgical publications stress the newest, most sophisticated diagnostic and therapeutic modalities for problems seen most often by the super-specialist. However, we must not overlook other more common conditions that if recognized can be managed successfully without expensive and elaborate tests and procedures.

An example of the latter is the interdigital clavus — a soft corn between the toes. Although a rather mundane topic, our editor has seen several patients in whom this diagnosis was not made until after months of patient discomfort. He was impressed by the simplicity with which this problem could be treated once the diagnosis was made.

Clinical Example

A typical example is a 46-year-old woman who noticed a diffuse, thickened, tender area of skin at the inner surface of her little toe. This had been present for almost a year, and although uncomfortable when she walked, it was most painful when she wore tight shoes.

Examination revealed a reactive proliferation of epidermis at the inner aspect of her little toe. A bony prominence could be palpated beneath this thickened skin and adjacent to it on the fourth toe. Radiographs confirmed that this soft corn was the result of persistent irritation of skin by the irregular base of the proximal phalanx of the fourth toe which compressed the distal end of the proximal phalanx of the fifth toe (figure 1). The skin between these toes was compressed as in a vise and the external pressure resulted in a painful keratosis.

A soft corn (clavus) is the accumulation of horny epithelium between two toes, most commonly the fourth and fifth. Often painful, it is a localized response to pressure or irritation of skin between bony prominences of contiguous toes. The pressure might be between an enlarged condyle of one phalanx and a condyle of an adjacent phalanx (prominent end of one of the bones of the toes), between exostoses (bony spurs) on adjacent toes, or between the base of one proximal phalanx and the adjacent metatarsal head (end of one of the long bones of the foot). The clavus can be present on one toe or "kissing" lesions can be noted on contiguous toes. An early lesion can result from several weeks of compression of the toes either in a shoe that is smaller than usual or by physical activity that results in increased friction between the toes.

At this early stage the lesion can be aborted by wearing a wider shoe (having the shoe stretched) or by using lamb's wool or a small pad to separate the involved toes (figure 2B). These pads are not placed directly over the clavus but are positioned either proximal or distal so as to relieve pressure over the bony prominence. In addition, the accumulated epithelium can be trimmed.

Injection of drugs such as Cortisone and chronic use of sclerosing agents are contraindicated. Mere local excision of the soft corn is fruitless since the causative bony prominence remains.

More definitive treatment consists of excision of the exostosis causing pressure and irritation (figure 2C). It is unnecessary to excise the clavus itself since it will usually disappear after the adjacent bony prominence is removed.

With time, the irritated skin becomes thicker, more

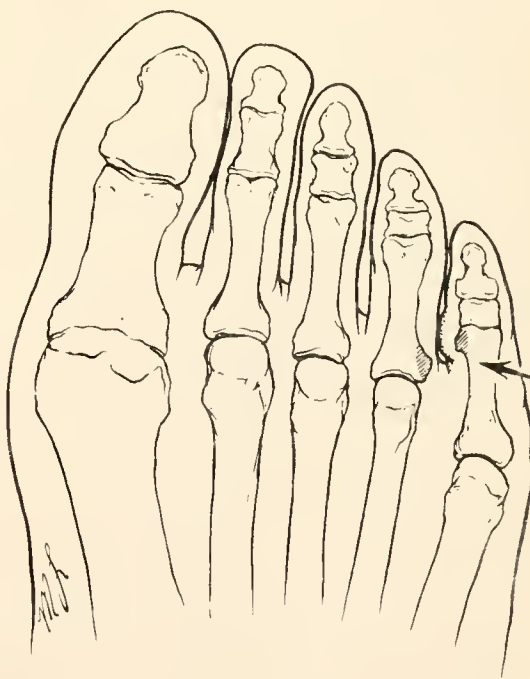


Figure 1. The outline of the bones of the foot is irregular. Soft corns can form as a response to pressure between any of these prominences on adjacent toes (arrow).

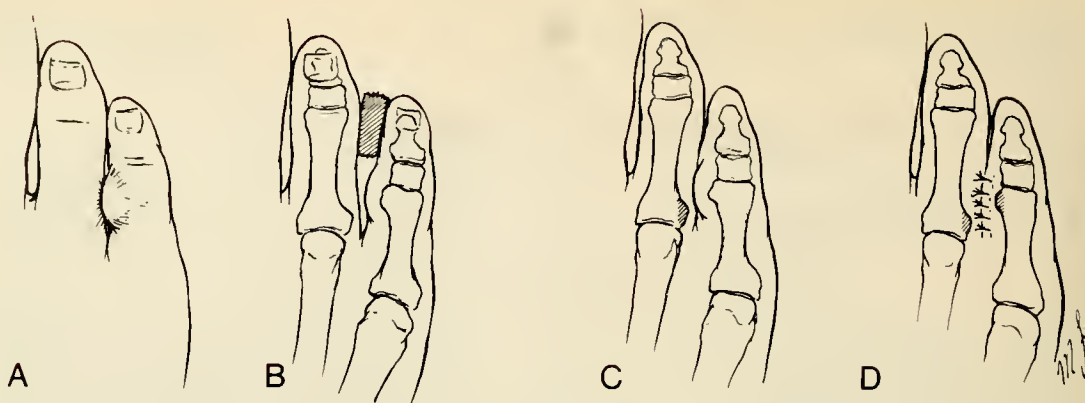


Figure 2. A. This represents the soft corn (reactive proliferation of epidermis) that has formed as a response to pressure and irritation between irregular bony prominences at the fourth and fifth toes. B. A small pad, positioned distal to the clavus, relieves pressure over the bony prominence and can decrease symptoms in early lesions. C. Bony prominence at the base of the proximal phalanx of the fourth toe (shaded) can be surgically excised to relieve pressure causing the clavus. The clavus itself (on the little toe) will usually disappear after this offending prominence is removed. D. Ultimate treatment is to excise the exostoses at both toes (shaded), to remove the involved skin between the toes and to suture the skin so as to close the involved portion of the web.

rigid, more painful. The ultimate treatment is to excise the irregular bony prominence causing the pressure, to remove an ellipse of skin containing the clavus often between the inner border of the little toe and the inner border of the fourth toe, and to suture the remaining skin (figure 2D). Thus a portion of the web between the two toes is joined (partial syndactyly). By excising the bony prominences and by removing the compressed skin between the two toes, no clavus can form and pain is eliminated.

Although not a complex procedure, the operation should be done when the patient can avoid a great deal of walking, jogging, or wearing snug shoes for at least three months.

Discussion

Treatment is sometimes delayed by failure to recognize the lesion as a clavus. In feet with excessive moisture,

maceration can occur between the toes and the soft corn can be mistaken for a fungal infection. Fissures and other skin problems can result from improper use of a variety of drugs. Scar tissue and infection from improper treatment can also complicate the diagnosis.

Although its surgical treatment is not complex, caution must be used in patients with such problems as peripheral vascular disease or diabetes mellitus because healing may be delayed and the risk of infection increased.

The clavus, or soft corn, can be a painful lesion that does not require elaborate diagnostic tests or procedures. It is an entity that should be able to be diagnosed initially by the family physician. If elimination of the lesion is desired an orthopaedic surgeon should be consulted. Although seemingly inconsequential, the diagnosis and treatment require care and caution.

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**For beta-1/beta-2
blockade** **Once-daily
INDERAL LA**
(PROPRANOLOL HCl) capsules

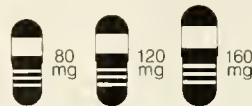


80 mg 120 mg 160 mg

The trademark of these capsules
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Please see brief summary of prescribing information
on the next page for further details.

Once-daily For beta-1/beta-2 blockade **INDERAL[®] LA** (PROPRANOLOL HCl) LONG ACTING CAPSULES



The appearance of these capsules is a registered trademark of Ayerst Laboratories

BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR)
INDERAL[®] LA brand of propranolol hydrochloride (Long Acting Capsules)

DESCRIPTION. Inderal LA is formulated to provide a sustained release of propranolol hydrochloride. Inderal LA is available as 80 mg, 120 mg and 160 mg capsules.
CLINICAL PHARMACOLOGY. Inderal LA is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by Inderal LA, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

Inderal LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with Inderal LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of Inderal tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

Inderal LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to Inderal LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, Inderal LA has been therapeutically equivalent to the same mg dose of conventional Inderal, as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. Inderal LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of Inderal LA has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) inhibition of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. Inderal LA has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosage greater than required for beta blockade, Inderal LA also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antianginal effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.
INDICATIONS AND USAGE. **Hypertension:** Inderal LA is indicated in the management of hypertension, it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. Inderal LA is not indicated in the management of hypertensive emergencies.
Angina Pectoris Due to Coronary Atherosclerosis: Inderal LA is indicated for the long-term management of patients with angina pectoris.

Migraine: Inderal LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.
Hypertrophic Subaortic Stenosis: Inderal LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or other stress-induced angina, palpitations, and syncope. Inderal LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS. Inderal LA is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with Inderal.
WARNINGS. **CARDIAC FAILURE.** Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely or Inderal should be discontinued (gradually if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and in some cases, myocardial infarction, following abrupt discontinuance of Inderal therapy. Therefore, when discontinuance of Inderal LA is planned, the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If Inderal therapy is interrupted and exacerbation of angina occurs, it is usually advisable to reinstitute Inderal therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. Inderal should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

Inderal (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOLYCEMIA. Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in insulin-dependent diabetics. In these patients, it may be more difficult to adjust the dosage of insulin.

HYPOGLYCEMIA. Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS. General: Propranolol should be used with caution in patients with impaired hepatic or renal function. Inderal (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta adrenoceptor blockade can cause reduction of intraocular pressure. Patients should be told that Inderal may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS. Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if Inderal is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncope, attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility. Long-term studies in animals have been conducted to evaluate possible effects on carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Pregnancy. Pregnancy Category C. Inderal has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. Inderal should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. Inderal is excreted in human milk. Caution should be exercised when Inderal is administered to a nursing woman.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS. Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency usually of the Raynaud type.

Central Nervous System: lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia, L-le-like reactions, psoriasisiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes and conjunctivae reported for a beta blocker (practolol) have been associated with propranolol.

DOSEAGE AND ADMINISTRATION. Inderal LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from Inderal tablets to Inderal LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. Inderal LA should not be considered a simple mg for mg substitute for Inderal. Inderal LA has different kinetics and produces lower blood levels. Retitration may be necessary especially to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION. Dosage must be individualized. The usual initial dosage is 80 mg Inderal LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS. Dosage must be individualized. Starting with 80 mg Inderal LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE. Dosage must be individualized. The initial oral dose is 80 mg Inderal LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, Inderal LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS. 80-160 mg Inderal LA once daily.
PEDIATRIC DOSAGE. At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

REFERENCES

- Holland OB, Nixon JV, Kuhnert L. Diuretic-induced ventricular ectopic activity. *Am J Med* 1981; 70:762-768.
- Holme I, Heigeland A, Hjermann I, et al. Treatment of mild hypertension with diuretics. The importance of ECG abnormalities in the Oslo study and in MRFIT. *JAMA* 1984; 251:1298-1299.

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Mycobacterium Avium-Intracellulare and Lung Disease: More of a Problem for Those of Us in the Southeast

Norman Adair, M.D.

- *Close relatives M. avium and M. intracellulare are present most often in the elderly and the immunocompromised, and are very difficult to treat successfully.*

PULMONARY tuberculosis has decreased markedly over the last few decades. As result, there has been a relative increase in the frequency of lung disease caused by the non-tuberculous mycobacteria. Physicians in North Carolina and the southeastern states have long been familiar with non-tuberculous mycobacterial disease of the lungs. In the early part of this century, an "atypical" mycobacterium was isolated from patients being treated for tuberculosis at the Battey State Hospital in Rome, Georgia and carried the name of that institution for several decades. We now know the "Battey" bacillus as *Mycobacterium intracellulare*,¹ a close relative of *Mycobacterium avium*. These two are often grouped together as variants of a single strain. Soil isolates from southeastern river areas yield 100 fold higher concentrations of *M. avium-intracellulare* (MAI) when compared with soil samples from the northeast.² Natives of the southeastern states have an increased frequency of cutaneous reactivity to MAI³ and an increased incidence of disease due to this organism.

M. avium-intracellulare and *M. kansasii* account for the majority of the "atypical" mycobacterial lung infections. In terms of human pathogenicity these organisms fall between *M. tuberculosis*, an obligate pathogen, and the benign free living mycobacteria. *M. avium-intracellulare* can cause an overwhelming and often fatal disseminated infection, especially in the immunocompromised host, e.g., AIDS; however, disease is usually manifest as an indolent pulmonary infection in the elderly. The chest x-ray demonstrates infiltrates, often with cavitation, that are indistinguishable from pulmonary tuberculosis.

A confident diagnosis of "atypical" mycobacterial lung disease is complicated by the fact that the organism may be a harmless colonizer in the oral cavity or the tracheobronchial tree, particularly in lungs damaged previously by chronic bronchitis or a fibrotic-inflammatory disorder. Strict adherence to diagnostic criteria is especially important when non-tuberculous mycobacterial lung disease is suspected in order to prevent unnecessary and potentially

toxic therapeutic intervention. Essential diagnostic criteria for lung disease due to MAI include the repeated isolation of large numbers of organisms from the same source (sputum), the absence of alternative pathogens, and the presence of clinical disease for which no other etiology is apparent. Ahn and co-workers have defined even more rigid criteria⁴ based on their observation that patients with sputum positive for MAI may convert to negative with bronchial hygiene alone.

Chemotherapy of *M. avium-intracellulare* lung disease is often unsuccessful because of primary resistance to most of the first and second line anti-tuberculous drugs. This has prompted some physicians to treat with five and six drug combinations,⁵ a strategy analogous to multiple agent chemotherapy of cancer. Presumably, these drug combinations cause multiple metabolic defects which can result in an anti-mycobacterial effect despite high levels of resistance to the individual drugs.⁶ Drug toxicity is very common with these regimens. However, some reports suggest that such aggressive therapy may not be required in all cases. Dutt and Stead⁷ have reported an initial 80% sputum conversion rate using primarily four-drug chemotherapy. More recent reports from Wales⁸ and Denmark⁹ indicate 60-70% sputum conversion with a conventional three-drug anti-tuberculous regimen employing isoniazid, rifampin, and ethambutol.

Therapeutic success equal to that currently achieved in pulmonary tuberculosis is not presently in sight and will require improved knowledge of the immunology and biochemistry of *M. avium-intracellulare*, the development of new drugs, valid *in vitro* susceptibility testing of drug combinations, and additional clinical trials. Current knowledge indicates that initial treatment should include isoniazid, rifampin, and ethambutol. Supplemental chemotherapy should be instituted if there is no sputum conversion in three months or if the clinical situation is deteriorating. Ethionamide and cycloserine are frequently recommended for supplemental regimens. Drug susceptibility testing has not been shown to improve therapeutic response but is often used as a guide for drug selection. *In vitro* studies and preliminary observations suggest that two ex-

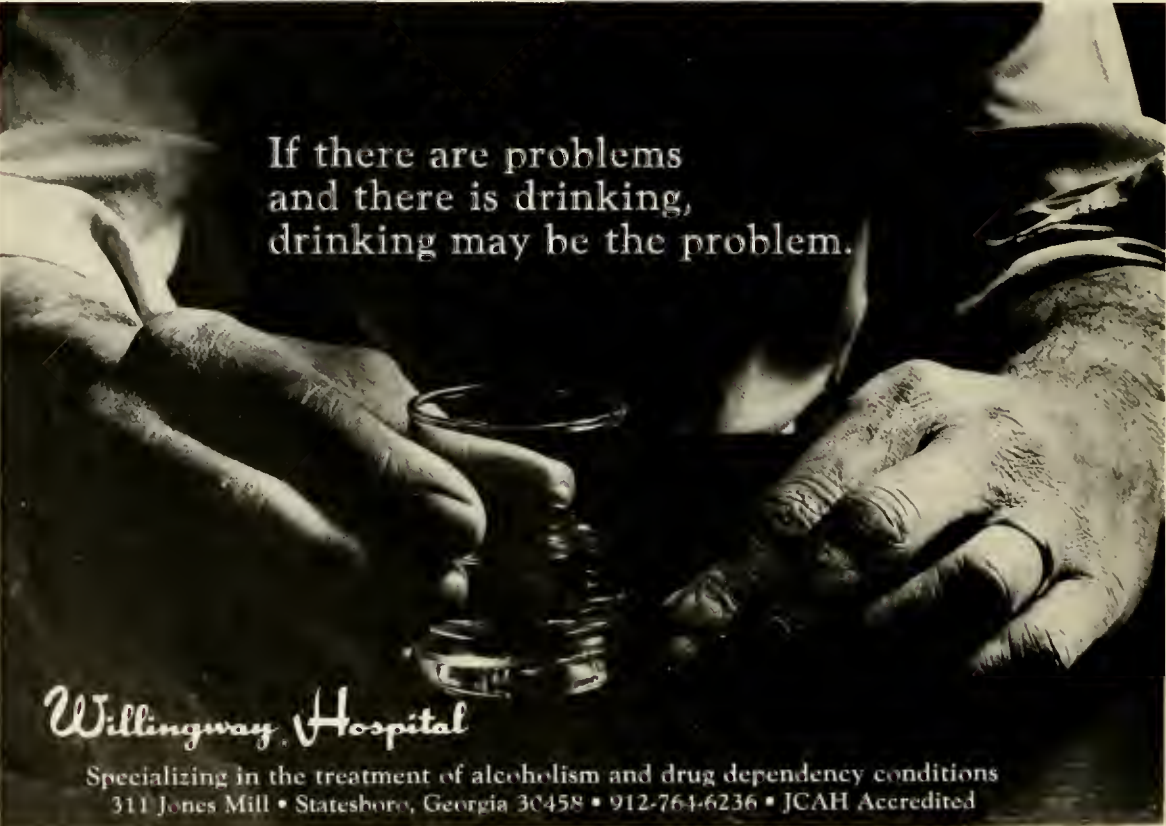
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perimental drugs, clofazimine¹⁰ and ansamycin,¹¹ may be active against *M. avium-intracellulare*. The latter may be obtained on a research basis from the Centers for Disease Control.¹²

Because of the often indolent nature of these infections, the advanced age of those afflicted, the frequent presence of bilateral involvement, and the coexistence of underlying lung disease, surgery will only occasionally be indicated. However, resection of well-localized lesions, including cavity bearing areas, may be definitive in some cases and should be carried out at a time when available drug effects are presumed to be greatest.

References

1. Runyon EH. *Mycobacterium intracellulare*. Am Rev Respir Dis 1967;95:861-867.
2. Brooks RW, Parker BC, Graft H, Falkenham JO. Epidemiology of infection by nontuberculous mycobacteria. Am Rev Respir Dis 1984;130:630-633.
3. Edwards LB, Acquaviva FA, Livesay VT, Cross FW, Palmer CE. An atlas of sensitivity to tuberculin, PPD-B, and histoplasmin in the United States. Am Rev Respir Dis 1969;99:1-131.
4. Ahn CH, McLarty JW, Ahn SS, Ahn SI, Hurst GA. Diagnostic criteria for pulmonary disease caused by *Mycobacterium kansasii* and *Mycobacterium intracellulare*. Am Rev Respir Dis 1982;125:388-393.
5. Davidson PT, Khanjo V, Goble M, Moulding TS. Treatment of disease due to *Mycobacterium intracellulare*. Rev Inf Dis 1981;3:1052-1059.
6. Heifets LB. Synergistic effect of rifampin, streptomycin, ethionamide, and ethambutol on *Mycobacterium intracellulare*. Am Rev Respir Dis 1982;125:43-48.
7. Dutt AK and Stead WW. Long term results of medical treatment in *Mycobacterium intracellulare* infection. Am J Med 1979;67:449-453.
8. Hunter AM, Campbell IA, Jenkins PA, Smith AP. Treatment of pulmonary infections caused by mycobacteria of the *Mycobacterium avium-intracellulare* complex. Thorax 1981;36:326-329.
9. Engbaek HC, Vergmann B, Bentzon MW. A prospective study of lung disease caused by *Mycobacterium avium/Mycobacterium intracellulare*. Eur J Respir Dis 1984;65:411-418.
10. Gangadharam PR, Pratt PF, Damle PB, Davidson PT. Dynamic aspects of the activity of clofazimine against *Mycobacterium intracellulare*. Tubercle 1981;62:201-206.
11. Perumal VK, KimChue N, Iseman M, Gangadharam PR. Dynamic and *in vivo* chemotherapeutic aspects of ansamycin on *Mycobacterium intracellulare*. Am Rev Respir Dis 1984;129:A186.
12. CDC. Ansamycin LM 427. Morbidity and Mortality Weekly Report 1985;34:76.



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Early Diagnosis of Testicular Carcinoma: Self-Examination of the Testicle

E. Everett Anderson, M.D.

- *Cancer of the testis is always treatable and usually curable. Self-discovery is the first and most important step.*

THE incidence of carcinoma of the testis in the United States is 2.2 per 100,000 men. Testicular carcinoma accounts for only one percent of all male cancers; but between ages 15 and 40, the peak incidence of this malignancy, it is the most common solid tumor in men, and between ages 25 and 35 it is the most common cause of cancer death in men. Testis tumors are extremely rare in the black race and unusual in Asians. There is a slightly higher incidence of carcinoma of the right testicle than the left and this could reflect the slightly higher incidence of cryptorchidism on the right side. The cause of testicular carcinoma is unknown. The association of testis tumor and cryptorchidism is well established and there are a few reports of familial incidence. However, no genetic influence on the development of testicular carcinoma has been established.

Since the discovery of cis-platinum in 1974¹ and its subsequent use with vinblastine, bleomycin and other drugs in multiagent chemotherapeutic programs, the cure rate of metastatic testis tumors has dramatically improved. Twenty years ago 95 percent of patients with distant metastases died. Currently the cure rate for patients with distant metastases is 70 percent, and for tumor involving only the testicle and retroperitoneal lymph nodes approximately 95 percent are cured. Testis tumor is usually first identified by the patient. Many patients with testis tumors have an antecedent history of scrotal trauma but there is no evidence that testicular trauma can induce malignant changes. More likely, the scrotal trauma causes the patient to examine his testicle and identify the neoplasm. Once the testicular mass has been recognized by the patient, it is frequently misdiagnosed by his physician as epididymitis and delays of effective treatment during antibiotic trials are common. Thirty-five percent of patients will have metastatic disease when the tumor has been identified.

Differential Diagnosis of Scrotal Masses

Scrotal masses can be simply classified as painful and painless. **Common painful scrotal masses** (figure 1) consist of acute epididymitis, torsion of the testis, incarcerated inguinal hernia and torsion of the appendix testis. Acute epididymitis is the most common painful scrotal mass and as a general rule does not occur before puberty. It is often

associated with acute prostatitis and previous urethral instrumentation with retrograde vasal dissemination of bacteria into the epididymis. On physical examination the epididymis is significantly enlarged, nodular and tender and there is associated edema but not usually inflammation of the testicle. Manual elevation of the scrotum will alleviate the scrotal discomfort.

Torsion of the testis can occur in utero but the peak incidence is at puberty and it rarely occurs after age 25. In children it may have an insidious onset but in adults it is usually manifest by the acute onset of severe scrotal discomfort. On physical examination, because of shortening of the spermatic cord the testis may be elevated in the scrotum and have a transverse axis. There may be associated edema of the testicle and epididymis. Scrotal elevation does not alleviate the discomfort. Any prepubertal boy complaining of scrotal discomfort should be evaluated immediately for testicular torsion.

An incarcerated inguinal hernia is often associated with a known history of an indirect inguinal hernia and frequently associated with nausea and vomiting.

Torsion of the appendix testis is manifest by the sudden onset of scrotal pain, and physical examination will identify a small "pea-size" tender mass at the superior pole of the testicle. A "blue dot" mass may be visible through the scrotal skin.

Common painless scrotal masses (figure 2) include varicocele, hydrocele, indirect inguinal hernia, cyst of the epididymis and testis tumor. The most common painless scrotal mass is the varicocele which may be identified in approximately 15 percent of men. The longer left internal spermatic vein drains at a right angle into the left renal vein whereas the right internal spermatic vein drains obliquely into the inferior vena cava. Because of this anatomical difference 99 percent of varicoceles occur on the left side. On physical examination the dilatation of the veins in the pampiniform plexus may resemble a "bag of worms."

A hydrocele of the tunica vaginalis is a "bottle shaped" cystic mass. Because of the overlying fluid within the tunica vaginalis the testicle is often difficult to palpate. The thumb and forefinger applied around the spermatic cord at the external inguinal ring will clearly define the upper limits of this scrotal mass and differentiate it from an inguinal hernia. Transillumination will confirm the fluid filled contents and the scrotal mass will be nonreducible.

From the Division of Urology, Duke University Medical Center, Durham 27710.

COMMON PAINFUL SCROTAL MASSES

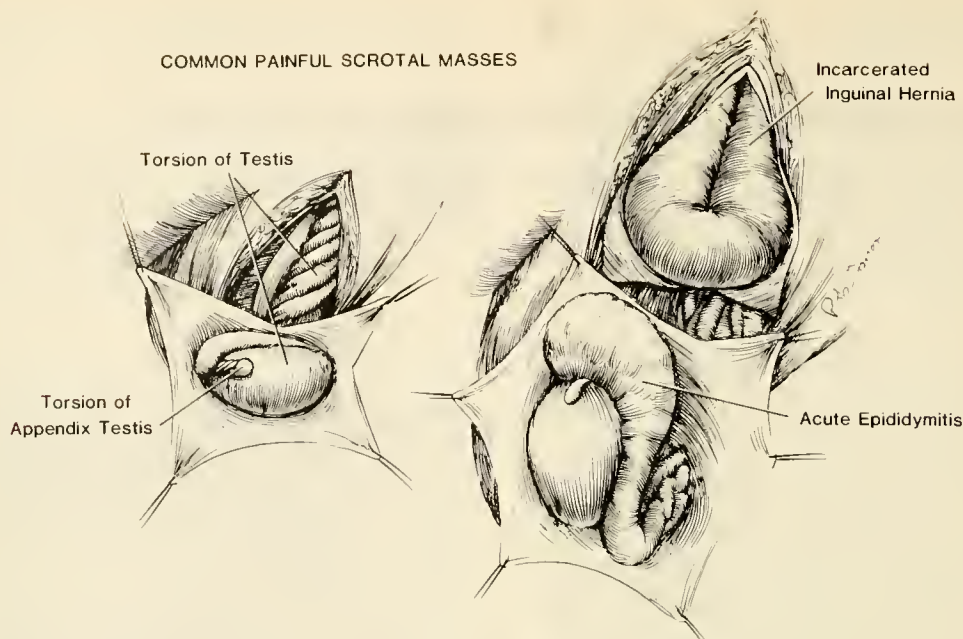


Figure 1. Painful Scrotal Masses

COMMON PAINLESS SCROTAL MASSES

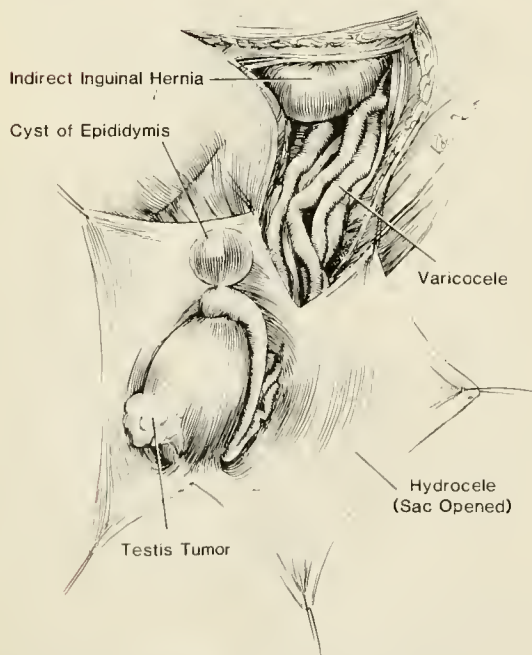


Figure 2. Painless Scrotal Masses

An indirect inguinal hernia is the only scrotal mass that is intermittently present. The mass may be reducible and a thumb and forefinger applied around the spermatic cord at the external ring will not confine the mass to the scrotum. Auscultation of this scrotal mass may reveal bowel sounds and the mass will not transilluminate.

Cysts of the epididymis usually involve the globus major of the epididymis (superior pole) and although they contain fluid they are often firm. If these cysts contain sperm, they are appropriately designated as spermatoceles. These scrotal masses on physical examination can easily be separated from the testicle and they will transilluminate.

Testis tumors present as a symmetrical, smooth, firm enlargement of the testicle or a firm nodular mass which arises from the testicle. On physical examination it is the only common scrotal mass which can not be separated manually from the testicle. Rarely if there has been necrosis and hemorrhage within the testicle, the testicular mass will be painful.

Self-Examination of the Testicle

Since the testicles are readily available for self-examination and testicular carcinoma is the most common solid tumor in men between the ages of 15 and 40, it would seem appropriate that the individuals at risk be instructed in self-examination of their scrotal contents.

Manual self-examination of the testicle is performed with the thumb on the anterior surface of the testicle and the remaining fingers behind. Back and forth movement of the thumb over the anterior surface of the testicle will delineate

any mass protruding from the surface of the testicle. Extratesticular masses can be identified by interposition of the thumb and forefinger between the mass and the testicle proper. Any scrotal mass outside of the testicle is not a testis tumor.

Self-examination of the testicle should be initiated at the 10th grade level and re-emphasized during subsequent routine school physical examinations or on office visits for other complaints. Audiovisual presentations and models demonstrating abnormal scrotal masses would enhance this effort.² Clearly prior to patient education, there must be

physician education. This would have to be initiated during medical school training and continued through residency programs. There has already been general public acceptance of self-examination of the female breast, and self-examination of the testicle would seem a logical step forward.

References

1. Higby DJ, Wallace HJ Jr, Albert DJ, et al. Diaminodichloroplatinum: a phase I study showing responses in testicular and other tumors. *Cancer* 1974;33:1219.
2. Donohue JP. Surgical management of testis cancer. *Testicular Tumors*, Edited by Einhorn, LH. New York, Masson, 1980;29.

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North Carolina Hospital Utilization — We Can Change!

William W. Fore, M.D.

- *Physicians who want fee-for-service medicine to remain an option in North Carolina are well advised to look at their hospital utilization rates.*

HOSPITAL utilization is decreasing in North Carolina. The change began before the implementation of payment by diagnosis related groups (DRGs) for Medicare patients, and the rate of decrease has increased since DRGs have been in effect. Even with our 11% decrease in hospital utilization, there is still room for improvement. The problem is that during this period of change there remains a wide range of utilization over the one hundred counties in our State. This difference between the counties with high and low rates of utilization is 136%. Is it going to be necessary for all of the negative incentives such as preadmission certification, peer review contract quotas, and prepaid medical care to be in place for the physicians in our state to lower medical costs by decreasing hospital utilization?

This journal recently reviewed the history of the 20-year progression of Federal regulation of our practices while we enjoyed the best incomes primary care physicians ever had in this country.¹ During these years the high cost of medical care was carefully studied and analyzed. Control escaped the purchasers of medical care and the medical profession. Our patients got their care when they wanted it or needed it, and on the whole got the best medical care in the world. There were no incentives for physicians or patients to decrease cost because two-thirds of the medical care bills in our State are paid by the Federal and State Governments and business corporations. The health care bill has increased by 15% to 30% a year, and in 1983 and 1984 we saw the concern over cost turned into action. The ideal situation — to have positive incentives for change — did not happen. Our behavior is being shaped by competition, denial of payment, preadmission certification, prepaid medical care, and fixed reimbursement. The majority of us practice in an honest manner and have a sincere concern for our patients. We do so in a fashion shaped by the commitment that strengthened us through the long years of school, our training, and the expectations of our patients.

There is a great deal of information on hospital utilization in North Carolina. Information on hospitalization in 1982, 1983, and 1984 is available from Blue Cross/Blue Shield.^{2, 3} These figures include an over-65-year-old population of less than 2%. In 1982, North Carolina averaged 802 hospital days per 1,000 subscribers. An 11%

decrease to 685 hospital days per 1,000 subscribers occurred in 1984. Approximately 25-30% of North Carolina counties are above this average figure. Health maintenance organizations have utilization rates of 300-600 days per 1,000 eligible patients.⁴⁻⁶ HealthAmerica, a prepaid plan expanding rapidly in North Carolina, states that their hospital utilization is 20% below the HMO figures and 40% below all BC/BS plans.⁷ Patients in the 65-year or older category are not in plans with these lowest figures nor are they the target population of HealthAmerica. An annual utilization rate of 500-600 hospital days per 1,000 patients (under 65) is not an unreasonable goal in North Carolina. Less than 20 counties have hospital utilization in this range. There is room for improvement.

Since 1979, the difference in practice patterns in our State has been recognized by the North Carolina Blue Cross/Blue Shield (BC/BS) Corporation and state agencies.^{2, 3, 8, 9} There is a 136% difference in hospital utilization over our state. If we look at the extremes of hospital utilization in the counties in North Carolina with the 1983 data for admission rates, there is 125% difference in admissions and 146% difference in hospital days per 1,000 subscribers. If one then matches the county population and the physician-patient ratio in a comparison of these counties, there are still large differences: 81% and 93%, respectively. Does this wide range of hospital utilization occur in a population other than that of the North Carolina BC/BS population? It does! The medical program for the aged, blind, and disabled has a 330% difference in hospital utilization over our state. The State Center for Health Statistics has 179% difference in discharge rates between two counties of similar size. We therefore have a difference across our state of at least 100% in the way we use our hospitals for patient care. If one looks at hospital availability, county population size, and numbers of physicians, it is difficult to generalize as to why this situation exists. One is left with the conclusion that it is due to the difference in practice patterns.² Therefore, it is due to physician behavior. Education in the best of worlds should modify physician behavior. Does it?

The North Carolina BC/BS organization selected counties with high admission rates for respiratory diseases and found little change in admission rates after extensive education efforts in the target counties. A recent article shows that education does not change hospital utilization or de-

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crease cost.¹⁰ Dr. Carl Lyle et al showed a 31% decrease in physician initiated charges by an intensive cost awareness program at the Charlotte Memorial Hospital.¹¹ They analyzed inpatient and outpatient lab charges and length of stay, and their physician group was residents in a city hospital teaching service. This study did not address cost saving by decreasing admission rate. It is difficult, with the above facts in mind and physicians' characteristics of individuality, to approach each county with the facts and expect that practice patterns will change and that the desired decrease in hospital utilization will result. I recently spoke to a county medical society about its high rate of hospital utilization. This county has two hospitals with an adequate number of physicians. The doctors had two excuses. One was, "My hospital has a lower per day cost than Duke Hospital or the Raleigh hospitals." Regardless of the daily cost a hospital saves money if unnecessary admissions do not occur. The second excuse was that their patients were being admitted by doctors in another county. The county with the highest hospital utilization has 1,257 hospital days per year per 1,000 subscribers, and sends most of its patients to an adjacent county hospital which has 818 hospital days/1000 for their residents. A recent study by BC/BS has shown that in our state 61% of our patients are hospitalized in the county in which they reside.³ With these facts it is hard to blame higher utilization entirely on the doctors in the next county. Excuses such as these only delay the changes that need to be made.

The fee-for-service practice of medicine in North Carolina has provided a high level of care. Patients and doctors prefer a strong patient-doctor relationship. Our current system of medical care, however, with a strong doctor-patient relationship, has not controlled the rapid escalation of medical care costs. The fee-for-service system is worth saving and should not lightly be abandoned. If the State and Federal Government and the business corporations of North Carolina see that fee-for-service doctors can effectively contain costs there would be less pressure to move to prepaid health care.

Diagnosis related groups have only been in effect since October 1983, and this has certainly had an effect, but the largest decrease in hospital utilization is probably due to outpatient surgery. In Pitt County for 1983-1984, there were approximately 430 outpatient surgical procedures done each month. This is 38% of the surgery being done in Pitt County. This surgical rate alone could account for a 20% decrease in hospital admissions and thus exceed the average decrease of 11%. Fourteen counties have remarkably high hospital utilization. There are two counties that exceed the average state hospital utilization figures by 130% from all three sources in all parameters reviewed,* there are eight that exceed the 130% of the average from at least one source, and there are four additional counties that exceed the average hospitalization utilization rates by 14-44% from the State Center of Health Statistics. These

counties also have two problems: a greater number of surgical procedures per unit of population and fewer procedures done in ambulatory units. Five of these 14 counties have very low outpatient rates for the 18 surgical procedures† being monitored by BC/BS. Therefore, an effective decrease in hospitalization will occur only if the practice patterns of the North Carolina surgeons in these counties change as they select the patients to have surgery and the site where the surgery is performed.

The 14 counties with high hospital utilization are geographically spread all over the state. The population of the counties varies from 8,900 to 74,100. The physician: population ratio varies from 1:8,900 to 1:685. It is impossible to say that this high hospital utilization is due to the fact that the physicians and surgeons are overloaded. There is no generalization that can be made regarding the population they serve. The high utilization practices cross all socioeconomic groups since the same information is available from BC/BS and the Medicaid program. The reason our utilization varies greatly is due to the way we as physicians practice and utilize our hospitals.

Why do anything about hospital utilization? Hospital utilization is the primary target of cost containment efforts in our state at this time. If fee-for-service physicians in North Carolina make a dramatic change in hospitalization it would show that our concern about the rising cost of medical care is sincere. Any county that lowers its utilization rate dramatically will be looked on very favorably by industry seeking future sites for plant construction. The various prepaid medical care programs are moving rapidly into North Carolina and the nation. They will not replace these fee-for-service physicians if we compete with a reduced level of hospitalization. If we do not lower our hospital utilization, then all of the programs with their negative incentives, such as the ones in place at the present time, will be extended by government, industry, and insurance companies to obtain lower medical care costs. We will be the pawns not the players in this coming game to "trim the fat" from the high costs of medical care.

How does one accomplish lower hospital utilization?

First, let's admit there is a problem. Second, let's throw away the excuses and not put it on the doctors in the next county. Third, let's analyze what we can do to change our community to provide quality outpatient care for those problems we now admit to our hospitals. Fourth, let's stop using hospitalization as a method of postponing the history, physical, and diagnostic planning for our patients to the evening hours to be performed by ourselves or our consultants.

Some specific areas to consider are:

Do you know that businesses evaluate statistics on practice patterns when choosing a community for a plant site? Counties with high hospital utilization will have trouble getting new industry.

Does your radiologist provide instruction to prepare pa-

* Blue Cross and Blue Shield of North Carolina 1982, 1983; Pediatric hospital utilization, hospitalization for injury and poisoning, hospitalization for ill-defined illness, hospitalization for genitourinary disease and respiratory disease. Division of Medical Assistance Administrators Letter 1983; data on medical patient population. State Center for Health Statistics 1982; discharge rates per 1,000 populations.

† Myringotomy with tubes; removal of tonsils and adenoids; abdominal hernia repairs; excision of breast masses; D&C; laparoscopy; Bartholin gland surgery; therapeutic abortion; insertion of intraocular lens; arthroscopy; carpal tunnel decompression; excision of ganglion; excision of Morton's neuromas; skin grafts; cystoscopy; bronchoscopy; endoscopy; colonoscopy.

tients for outpatient examinations?

Does your Home Health Service provide hospital services such as intravenous therapy and parenteral medications?

Does your county medical society conduct a program of public education as to the necessity of doing as an outpatient many things that in the past were done in the hospital?

Are you referring your patient to a surgeon who uses an ambulatory surgical unit?

Does the ophthalmologist who sees your patient do lens surgery in an outpatient facility?

Have you identified patients with pneumonia who can be seen in the office and treated at home with close office follow-up?

Do you treat urinary tract infections without nausea and vomiting at home and get appropriate studies as an outpatient?

Do you have patient instruction sheets regarding home care already prepared for your patients?

Does a difficult diagnostic problem really need admission for lab, consultation, and x-rays?

Do you encourage a mother to stay home with her sick child rather than compete with hospital aides?

Is your local hospital developing a wellness program?

When you order diagnostic tests on a patient, do you consider cost?

Each of us must answer these questions and have the

desire to change our practice patterns. Change is upon us and will come either because we participated and continued to be advocates for our patients or let it pass us by. We must either change or resign ourselves to be moved by forces from outside our profession. If we can practice medicine in a concerned and most cost-effective way, then we can get our patients, the business world, their insurers, and the governmental agencies to focus on other major reasons for increased health care costs such as the care of the terminally ill, the aging population, inflation, and the proper utilization of new technology.

REFERENCES

1. Silberman HR. An insight into the utilization review: beyond responsibility and towards accountability* (a mini history of the development and evolution of peer review). *NC Med J* 1984;45:96-7.
2. Greene SB, DeMan WJ. Hospital utilization patterns in North Carolina: Implications for cost of care. *NC Med J* 1983;44:581-4.
3. Greene SB. Personal communication.
4. Gaus CR, Cooper BS, Hirschman CG. Contrast in HMO and fee for service performance. *Social Sec Bull* 1976;39:3.
5. Alternative Health Care Delivery Systems, (The HMO Concept). American Medical Association Dec 1978.
6. Egdahl RH, Taft CH, Friedland J, Linde K. The potential of organizations of fee-for-service physicians for achieving significant decreases in hospitalization. *Ann Surg* 1977;186:388-99.
7. Health America Brochure, p. 6.
8. State Center for Health Statistics. 1982 Summary Data.
9. Matula BD. DMA Administrative Letter, No. 34-83. July 6, 1983.
10. Schroeder SA et al. The failure of physician education as a cost containment strategy. *JAMA* 1984;252:225-30.
11. Lyle CD, Bianchi RF. Teaching cost containment to house officers at Charlotte Memorial Hospital. *J Med Educ* 1979;54:856-62.

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Renal Autoregulation, Drugs, and Acute Renal Failure

William B. Blythe, M.D.

• *A primer on renal autoregulation for the clinician.*

If they recollect it at all, most physicians remember the phenomenon of autoregulation of renal blood flow and glomerular filtration rate as a rather mysterious, perhaps pedantic, principle which was solely the domain of the renal physiologist in his animal laboratory, one which was bereft of any clinical usefulness and never to be considered again after the basic-science years of medical school.

As a result of the development of certain classes of drugs in recent years, renal autoregulation has moved squarely into the clinic, and at least an awareness of it, how it can be deranged, and the serious consequences that can ensue when it is interfered with, can help keep the physician out of trouble.

Renal hemodynamic autoregulation is concerned with keeping renal blood flow and glomerular filtration rate relatively constant over a wide range of renal perfusion pressures. Changes in renal vascular resistance effected by changes in resistance in either the afferent or efferent arterioles — or both, depending upon the circumstance — keep renal blood and glomerular filtration rate from rising drastically when the renal perfusion pressure is greatly increased and, conversely, keep them from falling drastically when perfusion pressure is low.

Consider the latter state. It is of particular clinical importance. In settings of reduced renal perfusion pressure, such as might occur in salt depletion, hemorrhage, endotoxin shock, severe congestive heart failure, and certain forms of chronic renal failure, renal vasoconstrictor and vasodilator systems are activated simultaneously, and the final setting of renal resistance represents the net effect of these excitatory and inhibitory influences. Although there are numerous complex facets in the process, there are two hormones that are involved that are important in our consideration. These are angiotensin II and the renal prostaglandins. Angiotensin II produces constrictor effects and the prostaglandins antagonize these effects.

If angiotensin II production is blocked, efferent arteriolar constriction cannot be effected and glomerular filtration rate will fall and renal failure may ensue as a consequence. If, on the other hand, prostaglandin synthesis is inhibited, efferent arteriolar constriction is unable to preserve glomerular filtration rate because the fall in glomerular plasma

flow that results from afferent arteriolar constriction outweighs the increase in glomerular capillary pressure mediated by the increased efferent arteriolar resistance, and acute renal failure may occur in this circumstance also.

Thus, inhibition of synthesis of either angiotensin II or the renal prostaglandins may result in acute renal failure in any clinical setting in which renal perfusion pressure is reduced.

Three classes of drugs which have been developed in recent years and for varying clinical purposes fit the bill. First came the non-steroidal anti-inflammatory drugs. These drugs are used in the treatment of all sorts of disorders. It has been estimated that over five million people are exposed to them daily, a conservative figure that does not take into account the use of aspirin. They act by inhibiting prostaglandin synthesis and, although the prevalence of acute renal failure associated with their use is relatively low, one must be alert to the possibility that it may occur in situations where renal perfusion pressure is reduced.

Next came the angiotensin converting enzyme inhibitors such as Captopril, which are used primarily in treating hypertension and occasionally congestive heart failure.

It has been shown clearly that the use of this drug in patients with fixed bilateral renal artery stenosis, a situation in which renal perfusion pressure is reduced, can lead to the development of acute renal failure.^{1, 2} Here the physician should be particularly alert for this possibility in treating older patients with hypertension who may have bilateral renal artery stenosis as a consequence of arteriosclerosis.

The last class of drugs to be indicated are the calcium channel blockers. These new agents, which are now being widely used in the treatment of ischemic heart disease and hypertension, block the flux of calcium ions across various excitatory cell membranes and thereby have a potent vasodilator action.

Diamond and colleagues recently reported that nifedipine, one of the slow calcium channel blocking agents, caused acute, reversible deterioration in renal function in four patients with chronic renal insufficiency.³

There was no evidence in the patients of any of the usual causes of acute renal failure; thus the authors postulated that the nifedipine produced deterioration in renal function by perturbing renal autoregulation through one or both of the mechanisms under discussion. One possibility is that nifedipine, by blocking slow calcium channels, prevents

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the angiotensin II-mediated efferent arteriolar constriction. The other is that nifedipine inhibits synthesis of renal prostaglandins. Either — or both — would lead to reduction in glomerular filtration rate and acute renal failure. At present, the prevalence of this happening is not known. We have seen several cases in the past two months at the North Carolina Memorial Hospital.

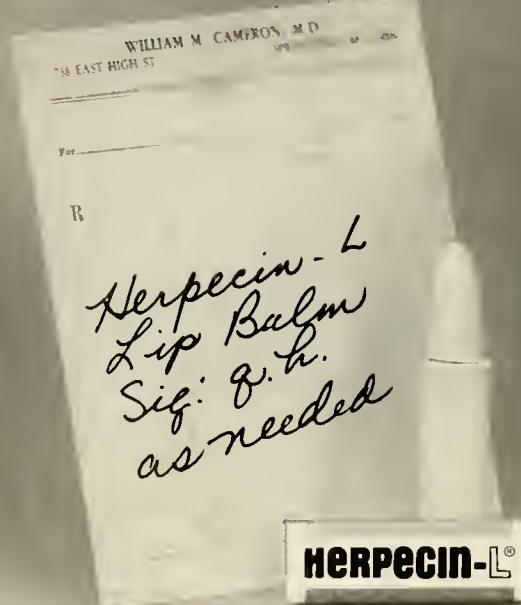
The message is clear. The physician should be alert to the possibility of the development of acute renal failure in patients in any of the clinical settings that produce reduced renal perfusion pressure and who are receiving any of these

drugs. Frequent plasma creatinine determinations should be made. Should a rise in the plasma creatinine concentration occur, the drug should be stopped. Renal function almost always returns to normal after cessation of the drug.

References

1. Hricik DE, Browning PJ, Kopelman R, et al. Captopril-induced functional renal insufficiency in patients with bilateral renal-artery stenosis or renal-artery stenosis in a solitary kidney. *N Eng J Med* 1983;308:373-6.
2. Blythe WB. Captopril and renal autoregulation. *N Eng J Med* 1983;308:390-1.
3. Diamond JR, Cheung JY, Fang LST. Nifedipine-induced renal dysfunction. *Am J Med* 1984;77:905-9.

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Understanding the Patient: Medical Words the Doctor May Not Know

Jeremy Sugarman and Ronald R. Butters

• Modern medical malapropisms

FOR centuries, the ritual and jargon of the medical profession has evoked a sense of mystery in those outside the fraternity. Writers such as Molière have satirized the argot of the medical profession, and recent scholars have discussed the problems doctors' uses of language present for the patient.^{1, 2} Serious attention has been paid to the terms used by nurses,^{3, 4} the language of medicine,⁵ and words used in normal hospital conversation.⁶ The problems encountered as the doctor tries to understand patients has also been recognized,⁷⁻¹⁰ but the information published to date is fragmentary, and each author seems to stress different problems inherent in doctor-patient communications. Snow, for example, gives an excellent discussion of the etiology and subtleties of a medical belief system markedly different from that of most medical practitioners, that of the folklore of black American subcultures. Such terms as *witchcraft*, *voodoo*, *hoodoo*, *a fix*, *rootwork* and *a mojo* are important medical realities for many persons.

What follows here is a synthesis of the earlier studies, expanded and brought up to date by the first author's own experience (patient interviews and discussions with resident and attending physicians at Duke University Medical Center and the Veteran's Administration Hospital, both in Durham.) We have divided patient medical talk into two categories: **Malapropism**, in which the patient confuses the pronunciation of standard medical terminology; and **Slang** and **Nonstandard Dialect** — terms that may differ regionally or socially from what the doctor may be familiar with.

A number of **malapropisms** were collected by Dr. R. Whalen and were reported in the following hypothetical case history:¹⁰

The patient was a forty-year-old woman who arrived at the mercy clinic by avalanche. . . . A review of past history revealed that she had first visited the female clinic five years previously to have her service authorized. . . . Because further review of the history then revealed that she has had several athletic fits, sprangles, migrating headaches, and cascading, she [was] admitted to the hospital.

Although once understood these malapropisms seem humorous to the physician, they may initially cause con-

siderable confusion for the doctor and embarrassment for the patient. A number of the malapropisms that Whalen reported persist some twenty years later, while others have apparently fallen from use (based on current patient interviews).*

Malapropisms

angemona [REW]	Angina pectoris
athletic fits [REW]	Epileptic seizures
avalanche [REW]	Ambulance
*bleech baby	Breech baby
*cadillacs	Cataracts
*chicken pops [REW]	Chicken pox
corollary seclusion [REW]	Coronary occlusion
*corpse suckles	Red blood corpuscles
*clogs [REW]	Clots
electrical fits [REW]	Epileptic fits
electric lights [REW]	Electrolytes
*Eucharist	Uterus
ferocious-of-the-liver [REW]	Cirrhosis of the liver
(See also "roaches of the liver")	
*fireballs [REW, PCK]	Fibroids
gingeralis therapy [REW]	Digitalis therapy
gluco-in-the-vein [REW]	Intravenous glucose
gone-to-Korea [REW]	Gonorrhea
*hemogoblins	Hemoglobin
infatigo [REW]	Impetigo
mercy clinic [REW]	Emergency clinic
migrating headaches [REW]	Migraine headaches
monogram [REW]	myelogram
*Old Arthur	Arthritis, (as in "Old Arthur has me")
*peanut butter ball	Phenobarbital
*prostrate [JFB]	Prostate
pulse [JFB]	Pus
*roaches of the liver	Cirrhosis (See also "ferocious-of-the-liver")
*scientists	Sinuses
*service authorized [REW]	Cervix cauterized
*sick-as-hell anemia, sic-as-hell disease [REW]	Sickle cell anemia
*smiling-mighty-Jesus, spinal-moanin-Jesus [REW]	Spinal meningitis
telescoped [REW]	Fluoroscoped
terrible clombosis [REW]	Cerebral thrombosis
thrombofleabitis [REW]	Thrombophlebitis (as in

From Box 2849, Duke University Medical Center, Durham 27710.

“No, Doc, ain’t no fleas in my house”)

*very-close-veins Varicose veins
virginia [REW] Vagina
vultures [REW] Convulsions
*wound Womb
wrecked fistoola [REW] Rectal fistula
yellow jaunders [REW] Jaundice

Another source of confused communication may result when the patient uses slang or nonstandard dialect to describe symptoms, illness, or behavior—vernacular that the non-native doctor may not be familiar with. Such terms are often consistent with medical theory, but they may also hold subtleties that correspond to the patient’s conception of illness.⁹ As with malapropisms, some of these terms have been described by others previously. A few of the terms listed here have apparently fallen from current usage, yet others have a surprising permanence (e.g., *high blood* ‘hypertension’ and *low blood* ‘anemia,’ described by both Snow and Whalen). The items that follow were found in folk speech primarily in the southeastern United States.

Slang and Nonstandard Dialect

agures chill [JFB] Violent chill possibly indicating sepsis
*asthmy [REW] Asthma
*all-nervoused up [REW] Anxious
*bad blood [REW, LFS] Syphilis (See also “numbers in the blood”)
blind staggers [JFB] Dizziness, lightheadedness
*blood warts [REW] Hemorrhoids
cascading [REW] Vomiting
*changes Depression
corded [JFB] Stiff, tight
deathly sick [JFB] Nauseated
*deep study In a depression
drawing spell [JFB] Hyperventilation
*fall out [REW] Syncopal episode, fainting
*falling off the roof Menstruation
*lick To have sexual intercourse
*getting an attitude hostile, angry
*hark [JFB] Cough or clear the throat
hassle (like a dog) [JFB] Dyspnea
haven’t seen anything yet [JFB] Fear of pregnancy as well as delayed menstruation
*heart drop Syncopal episode resulting from Stokes-Adams Syndrome
*high blood [REW, LFS] Hypertension (But see “low blood”)
*hunker [EWM] To get into a squatting position

*in a deep study Depression (See “changes”)
*jimmies Nervousness, anxiety
kernels [REW] Lymph nodes
locked bowels [REW] Constipation
loss of courage [JFB] Loss of sexual desire or potency
*low blood [REW, LFS] Anemia (But see “high blood”)
*making water Urination
my head rose [JFB] Purulent otitis media
*nature 1. libido, 2. impotence, 3. bowels
*nerve aggravation Sciatica
nervous rigor [JFB] Anxiety attack manifested by an alternating tensing and relaxing of the muscles over the body
*numbers in the blood Syphilis (see also “bad blood”)
peart, pyert [JFB] Lively, in good health
pieted [JFB] Blotched
*piss hard (on) Erection common to young men upon waking
poison blood [LFS] Septicemia, bacteria in the blood stream
pone [JFB] Lump or swelling, usually a harmless accumulating of fat
quickie [JFB] Having sharp pains
regina [JFB] Vagina
risins [REW] Furuncles, boils
runnin’ off (at) the bowels Diarrhea
salivated [JFB] Devastated by an illness
shortness at the breast [JFB] Dyspnea (see also “hassle”)
*stretched out Nervous, anxious
stomach is torn up [JFB] Diarrhea (see also “runnin’ off the bowels”)
stubborn [JFB] Constipated (see also “locked bowels,” “torpid liver”)
strutted feet Swollen feet
suage down [REW] Lose weight
*sugar diabetes Adult onset diabetes mellitus
torpid liver, liver is not kicking off just right [JFB] Constipated (see also “stubborn”; “locked bowels”)
washing out the main nerve [REW] Pneumoencephalography

*Terms previously reported by Whalen (1961) are indicated by his initials [REW]; those reported by Snow (1974) are indicated by [LFS]; those reported by Burnham (1984) are indicated by [JFB]; by Massey [EWM]; and by Kolin [PCK]. Items actually attested in our own investigation are marked with an asterisk.

Have you run into other malapropisms and/or slang expressions in your practice? If you have, write them down and send them along to the address below, and we’ll publish an update with all the new ones we receive.

Jeremy Sugarman
Box 2849 DUMC
Durham 27710

References

1. Shuy RW. Unexpected by-products of fieldwork. *Am Speech* 1983;58:345-58.
2. West C. Routine Complications. *Troubles with Talk Between Doctors and Patients*. Bloomington: Indiana UP, 1985.
3. Kolin PC. The language of nursing. *Am Speech* 1973;48:192-210.
4. Kolin PC. More nursing terms. *Am Speech* 1980;55:46-53.
5. Hukill PB. The spoken language of medicine: argot, slang, cant. *Am Speech* 1961;362:145-8.
6. Pound L. Hospital lingo. *Am Speech* 1938;13:227-9.
7. Burnham JF. Dialect is diagnostic. *Ann Intern Med* 1984;899-901.
8. Kleinman A, Eisenberg L, Good B. Culture, illness, and care: clinical lessons from anthropologic and cross-cultural research. *Ann Intern Med* 1978;88:251-8.
9. Snow LF. Folk medical beliefs and their implications for care of patients: a review based on studies among Black Americans. *Ann Intern Med* 1974;81:82-96.
10. Whalen RE. Medical malaprops. *JAMA* 1961;177:158-60.
11. Massey EW, Trofater LP, Hartwig GB. Hunkering and peroneal palsy. *Muscle Nerve* 1981; 445.

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Conscientious Objection and Clinical Care: A History of Civilian Public Service Camp No. 61 at Duke University, 1942-1946

Louis E. Swanson and James F. Gifford, Jr., Ph.D.

• *Conscientious objectors in World War II became an integral part of the Duke Hospital workforce.*

WORLD War II produced serious shortages of clinically trained manpower in hospitals across America. While the calling-up of physicians was carefully planned, the more random drafting of attendant staff seriously curtailed the operation of many institutions. Beginning in 1942, the Selective Service began efforts to relieve these shortages by assigning units of conscientious objectors to serve as attendants in mental health facilities.¹ Conversations between Dr. Richard S. Lyman, Chairman of the Department of Neuropsychiatry at Duke, and Charles F. Boss, Executive Secretary of the Commission on World Peace of the Methodist Church, led to the establishment of Civilian Public Service Camp No. 61 at Duke in December 1942. The result was an experiment, unplanned by the organizers of the unit, in the utilization of highly educated laypersons for clinical duties and responsibilities well beyond the minimum requirements of the attendant's job. The service of the sixty-eight men who rotated through CPS No. 61 made a major contribution to keeping Duke Hospital running during the war, contributed also to a constructive national critique of health care for the mentally ill and prepared a number of these men for health-related careers. Twenty years after deactivation in 1946, appreciation of their achievement helped prepare acceptance at Duke of the design of a new answer to clinical manpower shortages, the physician's assistant.

Background

The strong peace movement in the United States during the 1930s accounted for inclusion in the Selective Service Act of 1940 of provisions for alternative service for those who were conscientiously opposed to war. Men who, for religious reasons, were opposed to all military service were classified "IV-E" and inducted into the Civilian Public Service program to perform work deemed nationally important under civilian direction. Unwritten guidelines included that the work should not be too visible to the public, should not be too easy and should not support the war effort. In meeting these objectives Selective Service offi-

cials sought and received the cooperation of church leaders through a coordinating agency called the National Service Board for Religious Objectors (NSBRO). Its task was to manage Civilian Public Service Camps under regulations drawn by the Selective Service System.²

The earliest camps were organized for outdoor activity under sponsorship of the Forest Service, National Park Service, General Land Office, and similar agencies. Later, special service camps were authorized under nonfederal sponsorship for work in general and mental hospitals, training schools, public health agencies and state agricultural departments. There were more requests for special service units than could be manned, so there was competition for them despite the fact that financing the units was the responsibility of the sponsoring church or institution.

CPS No. 61 at Duke was a general hospital camp. Great care was taken to insure that the unit was accepted initially at the host site: negotiations to establish CPS No. 61 eventually included Dr. Richard Lyman, Dean Wilbert C. Davison of the Medical School, representatives of Selective Service and NSBRO, officials of the Methodist Church, members of the university and hospital administrations, officers of the local American Legion post, student government leaders and hospital staff.

The first unit complement was to be twenty men, ten to serve on Meyer Ward, the psychiatry inpatient ward at Duke Hospital, and ten to serve at Highland Hospital, an affiliated psychiatric hospital in Asheville. Dr. Deryl Hart, Chairman of the Department of Surgery at Duke, then requested an additional ten men to serve as orderlies in operating rooms. Selective Service agreed and authorized CPS No. 61 on October 27, 1942. Notice of the new camp was circulated through the CPS system. Thirty men were chosen from an initial applicant pool of seventy-five men already serving at more than a dozen camps in the East and Midwest.³

As a group these men knew little about Duke, often confusing it with other universities. A few knew of the parapsychology experiments of Dr. J. B. Rhine; a few others recognized the name of a nationally ranked football team. One had heard that a Mr. Duke had given forty million dollars to build a university in a forest. Coming to a

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university hospital was a major incentive, however, for a group of men who, on average, were much better educated than those who normally held attendant and orderly positions. A number of the inductees had college degrees and many others some college experience. Their personal convictions about life, which led them to refuse military service, strongly supported working in the areas of medicine and health.

Duty and Development

In general terms the mission of the unit was to staff the psychiatric call units and the operating rooms. Its first official exposure to Duke Hospital was a meeting in the traditional medical school teaching amphitheater, which was somewhat intimidating to the newcomers. Vernon Altwater, Superintendent of Duke Hospital, extended an official welcome which still is vividly remembered. The men were spread around the arena in the first row of seats. Saying he wanted to make his position perfectly clear, Altwater began by drawing a line on the floor. "When I am on this side of the line I can talk to you as individuals, whether or not I agree with the position you have taken as COs. When I am on the other side of this line I am the administrator of Duke Hospital and enforce the rules and tell you what to do. Let's not mix the two. We are glad you are here; we need your help."⁴

Thereafter the men served in three distinct groups. The Meyer Ward contingent was supervised by Dr. Lyman, who also was the unit's overall director. Dr. Robert S. Carroll supervised the ten men assigned to Highland Hospital and Dr. Max Rogers was responsible for the operating room group. R. Paul Brotsman, a member of the unit, served as assistant director responsible for liaison among Selective Service, the sponsoring Methodist Commission for World Peace, and the administration of Duke Hospital. In 1943, when Dr. Lyman entered active military service, he was replaced as unit director by Dr. R. Burke Suitt.

The work week for all groups was 48 hours, including six

of instruction, plus an additional six hours of training in the evenings. Pay was \$15.00 per month plus room and board. This stipend compared to the \$0.10 per hour, or approximately \$21.00 per month, paid to German POWs working at a mental hospital fifteen miles northeast of Durham, but the COs accepted the differential in good humor and without ill feelings.

In the operating rooms the traditional tasks of orderlies were not difficult to learn, ranging from janitorial duties to nursing care. The men prepared equipment, transferred patients to the operating suites, positioned patients for surgery (figure 1), and returned them to their rooms. They located and positioned equipment, transported instruments and supplies, mopped floors, walls and ceilings, sorted linen and laundry, and in general learned to anticipate what needed to be done without instruction. They staffed the operating rooms from 7:00 AM to 7:00 PM, earning from Margaret Pinkerton, Dean of the School of Nursing, this comment: "The operating room has had to handle more cases this year than ever before. Our subsidiary help has grown progressively poorer and more unreliable. The operating group (CPS) has worked hard and under a good many difficulties. Due to their superior intelligence, they are of greater help in placing patients in position, lifting, etc."⁵

On Meyer Ward patients were admitted for intensive treatment pointed toward recovery and release. The average stay was 30 to 40 days. The men fed, clothed, and bathed patients and participated in their recreation. They administered wet sheet packs to excited patients and nursed others through shock treatments. They took TPRs (temperature, pulse, and respiration) and charted patient behavior. Miss Pinkerton noted "splendid results in carrying out occupational therapy measures planned by the doctors. This heretofore had been impossible due to . . . inferior help."

At Highland Hospital the work situation was quite different. Therapy programs were long term. More than one-half of the employees had been at some time psychiatric pa-

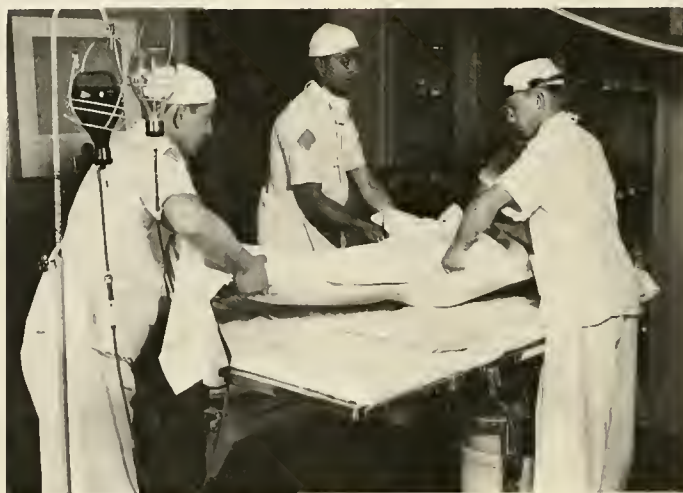


Figure 1. Positioning a patient. Note the CO's uniform with its distinctive diamond-shaped patch on both sleeves. (Photograph courtesy of Robert Blake.)



Figure 2. Artist at work. (Photograph courtesy of Robert Blake.)

tients. Some still were ill, which made life interesting for attendants. Exercise and physical exhaustion were used to maintain the physical condition and relieve the nervous tension of the patients, and both insulin shock therapy and electric shock therapy were more frequent than on Meyer Ward. Patients were at risk during these treatments and the attendants worked closely with the nursing staff to meet any emergencies. Dr. Carroll commented that the male department of the hospital might well have closed but for the coming of the CPS group. He also noted that

Practically without exception the members of this unit who came to us directly from camp life fell into the unique routine of responsibilities and activities here with a minimum of disruptance, indeed with an unexpected maximum of efficiency. Those who came to us after

some months at Duke were definitely more difficult. It would seem that to the advantages of the Highland Hospital regime they expected to find the atmosphere of University surroundings and so considerable gratuitous advice was given us, and from certain sources, criticism of conditions was apparent.

By the end of the first year the excellent performance of the inductees in their day-to-day routines and the high percentage of college graduates among them led Dr. Lyman to consider what more these men could do for his patients. "My major interest in the unit," he wrote, "has long since moved from the realm of the once needed hospital routine to that of possibilities of personal and group development, which have been started but by no means fully attained as yet." Encouraging the men to pursue their

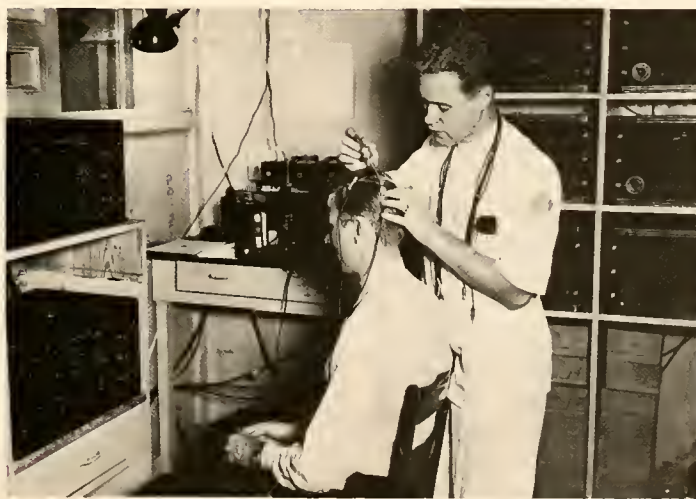


Figure 3. Working with EEG machine. (Photograph courtesy of Robert Blake.)

personal and professional development might save time for physicians on wards and in labs. "The point has been reached where I would enjoy being challenged to prove that we can fulfill some of these possibilities, creating values which were not even recognized to lie within the scope of this project at first."⁶

The values realized were remarkably varied. One man with previous experience in personnel work, assigned to type patients' social histories for psychiatry residents part-time, moved on to taking the histories full-time, thus freeing the residents for other work. A background in art and photography led another to work preparing charts, drawings, and photographs for research articles and exhibits and, after deactivation, to a lifetime career in medical art and illustration at Duke (figure 2). Two COs with engineering backgrounds were assigned to the EEG (electroencephalogram) lab to help keep the only EEG machine in the region running (figure 3). In the process they made several modifications of the machine that improved its performance. Other unit members maintained colonies of experimental research animals, became laboratory technicians and assistants, developed courses of physical therapy to assist patients preparing for discharge from the hospitals, and participated in research on insulin therapy, blood banking, motion sickness and recreational therapy for children. By 1943 the complement of the Duke unit was raised to 45 to accommodate transfers to full time special duty. These contributions, and the savings in trained manpower that they represented, greatly benefited Duke Hospital. As Vernon Altwater later noted, "Although your unit is small in size when it is compared to the total number of us working here, it has at times seemed to mark the dividing line between this hospital's running or being partially shut down."⁷ At least five men took the M.D. degree after the war.

Diversion

Living and working conditions generally were better than in other CPS camps. Initially the men at Duke lived in log cabins first built as housing for law students. At Highland Hospital they lived in small cottages. Beginning in 1943 married couples could live off site at their own expense. There was little public reaction to the unit, and no reported or known incidents of harassment other than the loudly voiced opinions of a few individuals who resented their presence at Duke. Wives who worked in Durham felt themselves somewhat different from their coworkers but, in part because they usually chose not to discuss their husbands' work, felt little negative social pressure. Incomes were meager, but as this was true for many families during wartime, few felt victimized. Neither did the CO status impose undue pressures on the marriages, except in cases when the families of prospective wives objected to the marriages beforehand. Unit members and their families socialized with each other, and other hospital staff, during picnics in the Duke forest, bicycle and bus trips, and in softball and football games, but social contact in the larger communities was limited.

The emphasis on education that was prominent on the job continued during off-duty hours. Some evenings were spent in formal training, with lectures and demonstrations

on patient problems and hospital procedures. Others were spent in "rap sessions" on topics such as the meaning of conscientious objection, the use of force in the management of patients, and issues of international concern. Still others were devoted to independent classes organized by the men, including language study in French, German, and Chinese, reconstruction in the South, and relief work motivation. At Highland Hospital, Dr. Carroll conducted classes in psychiatric theory, diagnosis and practice, noting the outstanding intellectual capacity and seriousness of purpose of the men.

Those who worked in the Meyer Ward and Highland Hospital groups, in communication with COs serving at other mental health facilities, gradually developed a sense of "responsibility to contribute to the improvement of the standards of patient care in the hospitals and later in life to contribute to the field of Mental Hygiene in one capacity or another."⁸ This intention emerged out of sessions in which the men measured their work experience against their personal principles, noting conditions that should be changed and others that could be improved. Contrasting the Meyer Ward and Highland Hospital experiences led to the "gratuitous advice" and "criticism of conditions" at Highland noted by Dr. Carroll, but also to a shared conviction that "we shouldn't just point out various deficiencies and gripes but that we should do something in the line of concrete suggestions and detailed plans." Areas targeted for research included the use of force, restraint and sedatives in treatment, upgrading the role of attendant, the need to reduce public fear of mental illness, improvement of laws to safeguard patients, promotion of improved conditions of mental health in local communities and preparation for contributing to the field of mental hygiene, vocationally or avocationally, after discharge from Civilian Public Service.

Conditions at the Duke and Highland hospitals in no way resembled those discovered by COs stationed in some mental institutions,⁹ where patients were poorly fed, ill housed, supervised by unqualified attendants, occasionally beaten or choked into unconsciousness, and often left for days at a time with nothing to do. As the intention of CPS inductees to improve conditions in mental health facilities became a nationwide movement, CPS No. 61 members made useful contributions because of their exposure to more enlightened standards of treatment. They collected and shared their experience through an in-house bimonthly publication called *Service*, which also presented pertinent excerpts from other publications. NSBRO published *The Reporter*, which kept the men abreast of issues and events in other camps. Nationally, CPS men organized as the Mental Hygiene Program of Civilian Public Service and published *The Attendant*, which was devoted to publishing information describing appropriate attitudes and procedures in patient care and to improving the role of attendants to the semi-professional status of psychiatric aides.¹⁰ This journal's call for all readers to become contributors directly reflected the efforts of individual units like CPS No. 61 to improve conditions at their host sites. Some were directly involved, beginning in 1946, in the work of the National Mental Health Foundation which, with five former COs serving as the executive committee and sponsorship from

such prominent public figures as Eleanor Roosevelt and Pearl Buck, documented inhumane conditions at mental health institutions and promoted higher standards of care and concern.

Conclusion

By 1946, however, the stability of the Duke unit was substantially reduced as men with longer periods of service were discharged and others worked to advance their discharge dates. There was considerable confusion at the work sites as experienced personnel were replaced with younger draftees and the more unique aspects of the CPS No. 61 experiment, the advanced personnel development projects, ended. Finally, in September 1946, the unit was deactivated.

No formal evaluation ever was made of CPS No. 61 by local hospital administrators. When the camp was deactivated the manpower shortage essentially was over at Duke as veterans returned to their jobs. But a legacy remained. In the short run, that legacy was increased expectations of job performance by attendant staff. The work of CPS No. 61 between 1942 and 1946 was the product of a unique congruence between the humanitarian convictions underlying conscientious objection and the needs of patients for competent clinical care. In the lives of these men duty, development, and diversion overlapped significantly to produce a new sense of the possible contributions of well-educated and highly motivated lay clinical staff. Although the homogeneity of the CO group was lost after the war, the possibilities remained.

Twenty years later they were realized again in vastly different circumstances. By the 1960s Duke Hospital again faced a shortage of clinically trained staff and Dr. Eugene

A. Stead, Jr., Chairman of the Department of Medicine, raised the possibility of multiplying the hands of physicians in both hospitals and local communities by training bright high school graduates and ex-military corpsmen for routine clinical tasks. This represented a considerable departure from previous medical manpower policy. However, when he brought his idea before the administration of Duke Hospital, the Assistant Superintendent was a former CO who had served, by special transfer, as acting business manager of Highland Hospital in 1944 and had gone on to a career in hospital administration. His presence and recollections of the experience of CPS No. 61 made Stead's new idea seem more plausible and, although the connection is indirect, the contributions of the COs are reflected in the role of the present-day physician's assistant.

Footnotes

1. Rochefort DA. Origins of the 'third psychiatric revolution': The Community Mental Health Centers Act of 1963. *J Health Pol Polit Law* 1984;9:4
2. Zahn GC. A descriptive study of the social backgrounds of conscientious objectors in Civilian Public Service during World War II. *The Catholic University of America Studies in Sociology*, 1953; Abstract Series 7:1-4.
3. Service, no. 1 (December 1943), 2, 14. Contains a bibliography of early articles on CPS and the Duke unit. Subsequent issues include chronicles of events at Duke and Highland hospitals.
4. Interviews with John Riebel and Robert Blake, Durham, North Carolina. Interviewed by Elon H. Clark, June 1984. Recording in Medical Center Archives, Duke University Medical Center.
5. This and the following evaluative comments are recorded in Service, no. 1 (December 1943), 6, 12. For comparison with evaluations at other institutions, see Lillian Schlissel (ed.), *Conscience in America*, (New York: E. P. Dutton, 1968), 234ff.
6. Service, no. 1 (December 1943), 2, 14.
7. Service, no. 1 (December 1943), 10-11; no. 2 (April 1944), 2.
8. Memorandum, undated, Louis E. Swanson Papers, Medical Center Archives, Duke University Medical Center.
9. Nina Ridenour, *Mental Health in the United States: a Fifty Year History* (Cambridge, Mass.: Harvard University Press, 1961), 104-7. See also Albert Deutsch, *The Shame of the States* (New York: Harcourt, Brace, 1948), 166ff.
10. The Attendant 2, no. 2 (February 1945), 9ff.

As of September 1, 1985, the Editor's office of the *North Carolina Medical Journal* will move from Duke Hospital to Route 1, Box 194, Bullock 27507, 919/693-4531. Dr. Stead will continue to serve as consultant to the Department of Medicine and can receive mail and messages at the usual address at Duke as well as at Bullock.

The Managing Editor's address and telephone (Box 3910, Duke University Medical Center, Durham 27710, 919/684-5728) will remain the same despite the Editor's change of address.

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LEWIS MEDICAL INSTRUMENTS INC.

PROJECT IPECAC: An Accident Prevention Program of the Robeson County Department of Health

Thad B. Wester, M.D.

- *Thad Wester has had a distinguished career as a pediatric practitioner in Lumberton. He moved to the other side of the table to direct the Department of Health of Robeson County. Knowing that "where you sit determines what you see," I have encouraged Thad to give the rest of us his view of our activities from his new perspective. I hope that he will continue to publish in the Journal.*
E.A.S.

THE most common health risk to children and young adults is accidents. In the preschool child, the most frequent accident-related risk is accidental ingestion of poisonous and noxious substances.

Traditionally, pediatricians and family practitioners have advised parents to keep syrup of ipecac on hand to be used to induce vomiting as early intervention. Often this advice is not heeded, leaving the family unprepared to react in an emergency situation. In such instances, over-the-phone emergency counseling from physicians and emergency room personnel who suggest the use of ipecac is useless, because ipecac is not readily at hand.

The program described, albeit fundamentally very simple, provides a solution for a community with such a problem. It also requires minimal continuous involvement, is cost effective and automatically accomplishes its objectives. In addition, it is a testimonial to the advantage of using the public health system in cooperation with community efforts to effectively accomplish a result that the private sector's one-on-one activity had been unable to obtain.

Objective

The ultimate goal of the project was to provide a one-ounce bottle of syrup of ipecac, along with instructions and educational materials, to each household in the county with a preschool child.

An estimate of the number of households can be determined by multiplying the county birthrate by five (representing the five preschool years). To this estimate we added a fudge factor of 20 percent to allow distribution to day-care facilities and family households where day care was provided by friends and members of the family.

Depending on the availability of funds, the project can be

accomplished, as in Robeson County, through a crash program. In such a program, the initial distribution of ipecac and the other materials occurs over a two or three-month period.

An alternative would be a phased program that would cost less but would require four or five years to reach the desired saturation. The use of a phased program is still a critical component of the ongoing program and will be described separately.

Crash Program

We solicited assistance from the following groups: pharmacists, pediatricians and general practitioners, day-care center operators, area medical centers and clinics, the Department of Social Services, school nurses, volunteer organizations and hospital nursery and emergency room personnel. The purpose of the ipecac program and the distribution process were explained to these groups. Support for "Project Ipecac" was unanimous from each group.

Preliminary Results

The success of our program, although based on figures of limited numbers and for very short periods, still appears impressive. We have seen a reduction of 25 percent in emergency room visits for the ingestion of potentially poisonous substances during the six months immediately following the advent of "Project Ipecac," compared with the same six-month period in the previous year.

We have also realized more than a 50 percent reduction in hospitalizations. Of the four hospital admissions during the most recent six-month period, two patients were admitted for kerosene ingestion. The other two were admitted only for observation and were released within 12 hours.

(In one case, syrup of ipecac had been given appropriately and vomiting had been induced, but the attending physician felt admission for observation was worthwhile. The child was released in less than six hours.)

From the Robeson County Department of Health, Lumberton 28358.

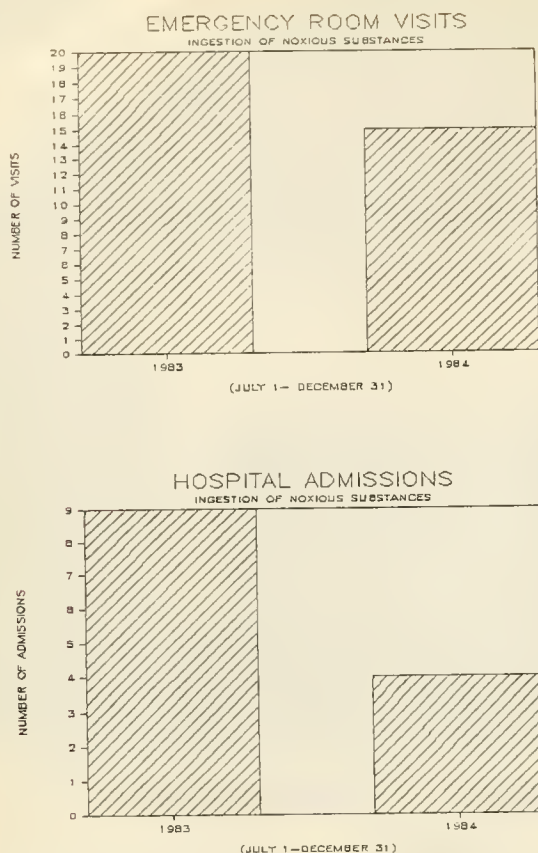


Figure 1. Emergency room visits (top) and hospital admissions (bottom) in the years before and during the Project Ipecac crash program.

Cost Benefit

The cost of syrup of ipecac in quantity is approximately 75 cents per one-ounce bottle. The cost of educational material is approximately 60 cents, most of which is printing costs for the booklet, "Your Child and Household Safety." The staff time to develop and implement the program came from within the health department. Other volunteer and professional time was contributed as well. The total cost of the crash program in Robeson County was 8,500 times \$1.35 or \$11,475.

The cost of the continuing (or phased) program will be directly related to the number of deliveries per year. In Robeson County there are approximately 1,600 deliveries each year for an annual cost of approximately \$2,200.

In the year prior to the program, there were 20 hospital admissions for poison ingestions in the local hospital, two-thirds of which might have been prevented by the timely use of syrup of ipecac. The estimated dollar cost of these hospitalizations was approximately \$20,000. According to preliminary data, these hospitalizations have decreased by 50 percent since the advent of the Ipecac program (figure 1). The cost of the crash program would be slightly greater than that saved in the first year of the project.

Our annual operation cost in the ensuing years is only one-fifth the cost of the crash program, yielding a 4:1 savings to cost ratio each year. The value of the other obvious benefits of preventive medicine, avoiding the stresses, handicaps and even the loss of life resulting from accidental poisonings, is incalculable.

We recommend this program to other communities if an active, efficient poison prevention program is not already in place. It is simple in concept, is cost efficient and works.

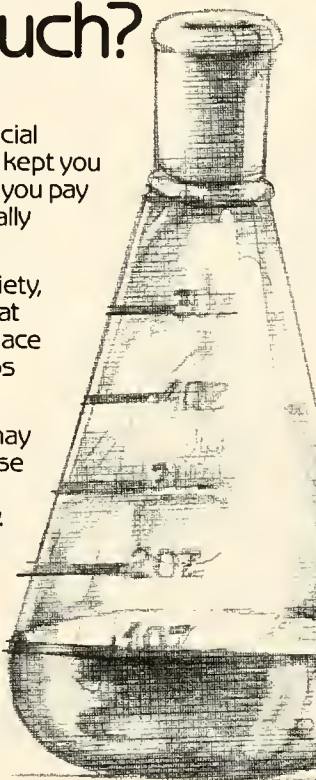
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Brief Summary of Prescribing Information

NORLESTRIN® (norethindrone acetate and ethinyl estradiol tablets, USP)

See section under **Special Notes on Administration and HOW SUPPLIED**.

Before prescribing, please see full prescribing information. A Brief Summary follows.

DESCRIPTION

Norlestrin Products are progestogen-estrogen combinations.

INDICATIONS AND USAGE

Norlestrin Products are indicated for the prevention of pregnancy in women who elect to use oral contraceptives as a method of contraception.

In clinical trials with Norlestrin 1/50 involving 25 983 therapy cycles, there was a pregnancy rate of 0.05 per 100 woman-years; in clinical trials with Norlestrin 2/50 involving 96 388 cycles, there was a pregnancy rate of 0.22 per 100 woman-years.

Dose-Related Risk of Thromboembolism from Oral Contraceptives: Studies have shown a positive association between the dose of estrogens in oral contraceptives and the risk of thromboembolism. It is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The oral contraceptive prescribed for any given patient should be that product which contains the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance.

CONTRAINDICATIONS

1. Thrombophlebitis or thromboembolic disorders
2. A past history of deep vein thrombophlebitis or thromboembolic disorders
3. Cerebral vascular or coronary artery disease
4. Known or suspected carcinoma of the breast
5. Known or suspected estrogen-dependent neoplasia
6. Undiagnosed abnormal genital bleeding
7. Known or suspected pregnancy (See WARNINGS, No. 5)
8. Benign or malignant liver tumor which developed during the use of oral contraceptives or other estrogen-containing products

WARNINGS

Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. The risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.

The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks:

1. Thromboembolic Disorders and Other Vascular Problems: An increased risk of thromboembolic and thrombotic disease associated with the use of oral contraceptives is well established. Studies have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic.

Cerebrovascular Disorders: In a collaborative study in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than nonusers, and the risk of thrombotic stroke was 4.0 to 9.5 times greater.

Myocardial Infarction: An increased risk of myocardial infarction associated with oral contraceptives has been reported confirming a previously suspected association. These studies found that the number of deaths due to increased risk of factors (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preclampsia/tovemia) for coronary artery disease, the higher the risk of developing myocardial infarction, regardless of whether the patient was an oral contraceptive user or not. Oral contraceptives, however, were found to be a clear additional risk factor.

It has been estimated that users who do not smoke (smoking is considered a major predisposing condition to myocardial infarction) are about twice as likely to have a fatal myocardial infarction as nonusers who do not smoke. Oral contraceptive users who are smokers have about a twofold increased risk of fatal infarction compared to users who do not smoke but about a tenfold to twelvefold increased risk compared to nonusers who do not smoke. The amount of smoking is also an important factor.

Risk of Dose: In an analysis of data, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in oral contraceptives; however, the quantity of estrogen may not be the sole factor involved.

Persistence of Risk: To date, there has been no suggestion that an increased risk may persist for as long as 6 years after discontinuation of oral contraceptive use for cerebrovascular disease and 9 years for myocardial infarction. In addition, a prospective study suggested the persistence of risk for subarachnoid hemorrhage.

Estimate of Excess Mortality from Circulatory Diseases: The risk of diseases of the circulatory system is concentrated in older women in those with a long duration of use, and in cigarette smokers.

A study of available data from a variety of sources concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of oral contraceptives in women over 40 who smoke.

The risk of thromboembolic and thrombotic diseases associated with oral contraceptives increases with age after approximately age 30 and, for myocardial infarction, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preclampsia/tovemia, and especially by cigarette smoking.

The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders. Should any occur or be suspected, the drug should be discontinued immediately.

A fourfold to sixfold increased risk of postsurgery thromboembolic complications has been reported in users. If feasible, oral contraceptives should be discontinued at least four weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization.

2. Ocular Lesions: Neuro-ocular lesions, such as optic neuritis or retinal thrombosis, have been associated with the use of oral contraceptives. Discontinue the oral contraceptive if there is unexplained sudden or gradual, partial or complete loss of vision, onset of proptosis or diplopia, papilledema, or retinal vascular lesions.

3. Carcinoma: Long-term continuous administration of estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver.

In humans, an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women has been reported. However, there is no evidence suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only oral contraceptives.

Studies found no evidence of increase in breast cancer in women taking oral contraceptives, however, an excess risk in users with documented benign breast disease was reported.

There is no confirmed evidence of an increased risk of cancer associated with oral contraceptives. Close clinical surveillance of users is nevertheless essential. In cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms, should be monitored with particular care.

4. Hepatic Tumors: Benign hepatic adenomas have been found to be associated with oral contraceptives. Because hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage, they should be considered in women presenting abdominal pain and tenderness, subcutaneous nodules, or shock.

A few cases of hepatocellular carcinoma have been reported in women taking oral contraceptives. The relationship of these drugs to this type of malignancy is not known at this time.

5. Usage in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring: During early pregnancy female sex hormones may seriously damage the offspring.

An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of oral contraceptives in pregnancy.

There is some evidence that the frequency and possible other types of polydipsy are increased among abortifacients from women who become pregnant soon after ceasing oral contraceptives.

Pregnancy should be ruled out before continuing an oral contraceptive in any patient who has not used two consecutive menstrual periods. If the patient has not adhered to the sched-

ule, the possibility of pregnancy should be considered at the time of the first missed period and oral contraceptives should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed.

Women who discontinue oral contraceptives with the intent of becoming pregnant should use an alternate form of contraception for a period of time before attempting to conceive. Administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy.

6. Gallbladder Disease: Studies report an increased risk of surgically confirmed gallbladder disease in users of oral contraceptives.

7. Carbohydrate and Lipid Metabolic Effects: Because decreased glucose tolerance has been observed in a significant percentage of patients, prediabetic and diabetic patients should be carefully observed while receiving oral contraceptives.

An increase in triglycerides and total phospholipids has been observed.

8. Elevated Blood Pressure: An increase in blood pressure has been reported in patients receiving oral contraceptives. The prevalence in users increases with longer exposure. Age is also strongly correlated with development of hypertension. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure.

9. Headache: Onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of oral contraceptives.

10. Bleeding Irregularities: Breakthrough bleeding, spotting, and amenorrhea are frequent reasons for patients discontinuing oral contraceptives. In breakthrough bleeding nonfunctional causes should be borne in mind. In undiagnosed abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy.

Women with a past history of abnormal uterine bleeding, amenorrhea, or young women without regular cycles should be advised that they may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of oral contraceptives.

11. Ectopic Pregnancy: Ectopic as well as intrauterine pregnancy may occur in contraceptive failures.

12. Breast-Feeding: Oral contraceptives may interfere with lactation. Furthermore, a small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs.

PRECAUTIONS

1. A complete medical and family history should be taken prior to the initiation of oral contraceptives. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen, and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, oral contraceptives should not be prescribed for longer than one year without another examination.

2. Periodic examinations of the breasts and pelvic organs should be performed in women with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree.

3. Oral contraceptives may cause fluid retention and should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated.

4. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice. If jaundice develops, the medication should be discontinued.

5. Reduced hormone levels may be poorly metabolized and should be administered with caution in patients with impaired liver function.

7. Users may have disturbances in normal tryptophan metabolism, which may result in a relative pyridoxine deficiency.

8. Serum folate levels may be depressed.

9. The pathologist should be advised of oral contraceptive therapy when relevant specimens are submitted.

10. Certain endocrine and liver function tests and blood components may be affected:

(a) Increased sulfolobomorpholine retention (b) Increased prothrombin and factors VIII, IX, and X (c) decreased antithrombin III (d) increased norepinephrine-induced platelet aggregability (e) increased thyroid-binding globulin (TBG) leading to increased circulating total thyroid hormone (f) decreased pregnenolone excretion (g) Reduced response to methylglucuronide test.

Drug Interactions: Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin.

ADVERSE REACTIONS

An increased risk of the following serious adverse reactions has been associated with oral contraceptives: thrombophlebitis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, cerebral hemorrhage, hypertension, gallbladder disease, benign hepatomas, congenital anomalies.

There is evidence of an association between the following conditions and the use of oral contraceptives, although additional confirmatory studies are needed: mesenteric thrombosis, neuro-ocular lesions, eg, retinal thrombosis and optic neuritis.

The following adverse reactions have been reported in patients receiving oral contraceptives and are believed to be drug related: nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10% or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: gastrointestinal symptoms, breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea, amenorrhea during and after treatment, temporary infertility after discontinuation of treatment, edema, chloasma or melasma, breast changes, change in weight, change in cervical erosion and cervical secretion, possible diminution in lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, change in corneal curvature, intolerance to contact lenses.

The following adverse reactions have been reported and the association has been neither confirmed nor refuted: premenstrual-like syndrome, calaracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption, vaginitis, porphyria.

Special Notes on Administration

Menstruation usually begins two or three days, but may begin as late as the fourth or fifth day after discontinuing medication.

After several months of treatment, bleeding may be reduced to a point of virtual absence; reduced flow may be a result of medication and not indicative of pregnancy.

HOW SUPPLIED

Norlestrin [21] 1/50 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of live compacts and packages of live rellis.

Norlestrin [25] 2/50 is available in compacts each containing 21 tablets. Each tablet contains 2.5 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of live compacts and packages of live rellis.

Norlestrin [28] 1/50 is available in compacts each containing 21 yellow tablets and 7 brown tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each brown tablet contains 75 mcg of ferrous fumarate. USP Available in packages of live compacts and packages of live rellis.

Norlestrin [28] 2/50 is available in compacts each containing 21 pink tablets and 7 brown tablets. Each pink tablet contains 2.5 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each brown tablet contains 75 mcg of ferrous fumarate. USP Available in packages of live compacts and packages of live rellis.

Norlestrin [28] 1/50 is available in compacts each containing 21 yellow tablets and 7 white inert tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of live compacts and packages of live rellis.

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Sisyphus on The Rocks — Monoamine Oxidase Inhibitors

Ronald B. Mack, M.D.

WHAT? You like yours with soda or 7-Up!! Shame on you — don't you remember Sisyphus? Sure you do — he was one of the most famous thieves in the history of Western Civilization but he made a few rather bad errors. One of his worst mistakes was to anger Zeus, who was the supreme god in Greek mythology; Zeus' brother, Hades (AKA Pluto), ruled the Underworld (no, not that underworld silly, the Underworld, the place where some go when they "buy the farm"!). Our hero (?) was sent to the netherworld but tricked his captors into allowing him to escape from Hell and re-enter the land of the living to avenge himself. He refused to return when asked and finally he was dragged back to the Underworld, forever, with a unique punishment: forever and ever Sisyphus was condemned to roll a huge boulder up to the top of a hill whereupon the boulder would roll back down to the bottom of the hill — this Sisyphus was to perform eternally.

Admit it, you all have had days or weeks where you feel like all you have done time after time is to push this large rock up the mountain only to have it roll right down again. Imagine, if you will, how some depressed patients must feel; pushing the rocks up the hill but getting no place. . . . In the mid 1950s a group of medications was introduced in an effort to treat depression. These were known as the monoamine oxidase inhibitors (MAOI). Why would anyone want to inhibit monoamine oxidase?

Monoamine oxidase is part of an enzyme system that breaks down certain neurotransmitters known as biogenic amines, e.g., norepinephrine, dopamine, serotonin. Many authorities believe that depression may be related to a deficiency of these amines. Monoamine oxidase inhibitors thus decrease or slow down the metabolic breakdown of these amines resulting in these chemicals being more available to the brain. (Gee, I feel better already, just by hearing all of this.) For a while the MAOIs were quite popular, but with the discovery and introduction of the tricyclic antidepressants they were used less and less. However, there has been a resurgence in the use of these agents and they are said to be efficient for the "right" patient and safe if managed carefully. One would suspect that most of us who are not psychiatrists should avoid prescribing these drugs. There are currently three MAOIs approved by the FDA for use in America: tranylcypromine (Parnate), phenelzine (Nardil) and isocarboxazid (Marplan). The latter two

chemicals bind irreversibly with monoamine oxidase whereas tranylcypromine exhibits reversible findings. As you might expect, these drugs resemble epinephrine and related compounds.

The pharmacokinetics of this drug class seems to still be a mystery — in a class with the unsolved mystery of what are the ingredients that make up your offspring's choice of mate. The drugs are readily absorbed and are metabolized in the liver. In the usual therapeutic dose inhibition of monoamine oxidase may take 5-10 days although a clinical response may not appear until weeks later. Peak plasma levels in therapeutic doses are probably achieved in about 2-4 hours. Elimination half-life ($T_{1/2}$) after a single therapeutic dose is about 90 minutes. Recent evidence, using the technique of measuring *platelet* monoamine oxidase levels (you mean your lab can't do them? Heavens!!), suggests that lifting of the depression occurs most favorably when 80%+ of the monoamine oxidase enzyme is inhibited. Apparently this translates into a dose of about 1 mg/kg of MAOI. There is some suggestion that very high dosage may inhibit its own biotransformation and thereby prolong the time needed to reach proper inhibition. It should be mentioned that patients vary widely in their rates of metabolism of MAOIs.

The exact toxic or lethal doses of MAOI have not been established. A minimum fatal dose is probably five to ten times the maximal daily dose although, as you might imagine, there are plenty of instances where patients have survived ingestions of this magnitude. There is a fairly long latent period between the ingestion of a toxic dose of an MAOI and symptomatology: an average period of 6.5 hours (range 1.5 to 13 hours). The toxicity from an acute overdose of this drug class is most probably due to a great potentiation of neurotransmitters because of spontaneous or drug induced release of accumulated transmitter and inhibited degradation. In other words, when you inhibit monoamine oxidase with an monoamine oxidase inhibitor the effects are on organ systems under the influence of sympathomimetic amines (e.g., norepinephrine, dopamine) and 5-HT. (Hold on just a minute — what is 5-HT? It is the abbreviated form of 5-hydroxytryptamine — AKA serotonin.) I guess what this really says is that an overdose of MAOI resembles a rather large overdose of catecholamines. Remember, these neurotransmitters will increase after an overdose only when MAO activity is inhibited by 80% or more.

Knowing these facts, it is relatively easy to figure out

From the Department of Pediatrics, Bowman Gray School of Medicine, Winston-Salem 27103.

what the clinical features of a MAOI overdose would be like. The early adverse clinical effects are those of remarkable stimulation of the nervous system. Therefore, *tachycardia* and *hypertension* are to be expected. *Hyperpyrexia* is quite common. Of course, you can expect complaints of dry mouth, nausea and vomiting. The hypertension can occur in *crisis* form with severe occipital headache radiating frontally, nuchal rigidity and photophobia. The hyperpyrexia is often quite severe and can be associated with diaphoresis and cold, clammy hands. The *hypertension* and *fever* are often accompanied by *twitching* and myoclonic fibrillation of skeletal muscles — at times leading to a *generalized rigidity* and *coma*. In many patients with this overdose the neuromuscular effects can be outstanding and it is useful to check for *hypertonicity*. The presence of *seizures* should not be a surprise either. *Dilated pupils* are *de rigueur*. In one recent series fasciculations, twitching, tremor or rigidity was present in 92% of patients. Severe agitation and hallucinations are part of this overdose nightmare. One rather peculiar and frightening clinical feature is the presence of a hypertensive crisis occurring contemporaneously with postural hypotension.

The clinical features of a MAOI overdose may not appear for as long as 12 hours after ingestion; signs of overdose can persist for as long as 8-10 days. Those patients whose course leads to eventual recovery begin their upward course (to health, not Heaven) by the third day and are really well by one week after overdose. When death occurs it is usually secondary to respiratory failure, circulatory failure or intracranial bleeding probably secondary to a hypertensive crisis. Very bad prognostic signs are extreme hyperpyrexia (e.g., 42°C) and irreversible hypotension. The CNS and peripheral nervous system signs you will well recognize as manifestations of excess catecholamines described by some authors as a "catecholamine storm." This clinical syndrome is also seen, as you might expect, in overdoses of cocaine, amphetamines, other psychostimulants such as phenylpropanolamine as well as a pheochromocytoma. Let me draw you an analogy — it's the sensations you felt in my old neighborhood in Chicago when someone delivered to you a fish wrapped in newspaper with

a note that said "sleep with the fishes" (translation). In a recent series of reported deaths from this drug the mean time of demise was 16 hours after ingestion with a range of 8 to 24 hours. As you probably have already guessed, laboratory findings in this overdose are not really specific; if you have access to epinephrine and norepinephrine levels they probably would be elevated.

The treatment of overdose of monoamine oxidase inhibitor is not specific, in fact it's quite non-specific. Patients who are seen early and who are without symptoms should have syrup of ipecac and activated charcoal administered. Symptomatic patients should receive activated charcoal and skip the ipecac especially if it is 2 hours or so post ingestion. Many authors advise hospitalizing a patient with clinical features of MAOI overdose, even if mild, for 12-24 hours. There are so many drugs that interact adversely with MAOI that discretion is often the better part of valor here. If the patient is hypertensive enough to be dangerous you might try sodium nitroprusside or phentolamine. If hypotension seems to be the problem try IV fluids initially and if that maneuver fails use very small, titrated doses of dopamine. Seizures and excessive neuromuscular activity can be treated with a benzodiazepine such as diazepam. A beta adrenergic blocking agent has been suggested as a method to block the excessive sympathetic nervous system stimulation. The hyperthermia that can occur with this overdose is particularly worrisome and can become malignant, best treated by cooling blankets, acetaminophen or salicylate therapy. Some authors recommend the use of chlorpromazine (Thorazine) for this purpose, but don't you be tempted; don't use this drug for this purpose — uncontrolled hypotension can ensue. If the temperature won't come down and all simpler measures fail you may want to paralyze the patient with curare or succinylcholine to reduce muscle activity and to reduce shivering. Forced diuresis or hemodialysis have not been shown to favorably alter the clinical course. . . .

Excuse me for leaving so abruptly, but I must have done something wrong — Mary, the Chief's secretary, just called and said that he has sentenced me to push a box of Pampers up Pilot Mountain until next St. Swithin's Day.

Bulletin Board

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IN STATE

July 11

Crisis — Then & Now

Place: Hickory

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 1/800/662-7917

July 15-19

Sonography of the Abdomen

Place: Winston-Salem

Credit: 35 hours Category I AMA

Info: Dianne L. Willard, Bowman Gray, Winston-Salem 27103. 919/748-4505

July 16

Crisis — Then & Now

Place: Wilson

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 1/800/662-7917

July 17

Diabetes/New Care Concepts

Place: Sanford

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

July 29-August 3

Diagnostic Imaging

Place: Atlantic Beach

Fee: \$350

Credit: 18 hours Category I AMA

Info: Carl E. Ravin, M.D., Box 3808, Duke University Medical Center, Durham 27710. 919/681-5268

August 21

Seizure Disorders in Pediatric Practice

Place: Sanford

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

OUT OF STATE

July 19-21

5th Annual MCV Cardiology Conference

Place: Hot Springs, VA

Fee: \$275

Info: Kathy Martin, Box 48, MCV Station, Richmond, VA 23298. 804/786-0494

September 5-7

Doppler Echocardiography Seminar

Place: Isle of Palms, SC

Credit: 16 hours Category I AMA

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September 12-14

Advanced Applied Ultrasound in Obstetrics Seminar

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Letters to the Editor

Bouquets for Balloons

To the Editor:

"Balloons on the CCU" by Charles Shunior is one of the best articles I have read in the *North Carolina Medical Journal* (NCMJ 1985;46:197-198). It typifies what is great about medicine — a learning, caring and loving relationship between the patient and those who provide medical care.

Congratulations.

Joseph B. McCoy, M.D.
150 Providence Road
Charlotte 28207

To the Editor:

It's nice when writing opens the door for the reader to step into another people's worlds. Specifically, I think it's helpful when we lay people are given a glimpse into the lives of medical practitioners, as in "Balloons on the CCU" in your April issue.

I thought the piece was a tremendously effective, and affecting, discussion of what it means to be a deliverer of health care — the brains and hearts that govern all that technology — and of the matter of making the most out of one's last days.

Thanks for the good article.

John B. Justice
Editor, *The Communicant*
Box 17025
Raleigh 27619

About Beard

To the Editor:

It has been some time since I have had the privilege of reading such a nice tribute as Dr. Bridges' recent one on Joe Beard (NCMJ 1985;46:303-9). It carries a strong and important message and is a landmark summary of the real background of the Duke University Medical Center.

I thoroughly enjoyed it!

David C. Sabiston, Jr., M.D.
Duke University Medical Center
Durham 27710

To the Editor:

I have just read the memorials to Dr. Joe Beard in the NCMJ. I worked with Dr. Beard for about three years in an arrangement made between him and Dr. Forbus so that I could get some research training. My career in research started there even though I did not remain in the field of virus neoplasia. He was one of the three people that I think are extraordinary in the etymologic sense of the word, here at Duke. Another one is Dr. Kempner with whom I have had some memorable exchanges only recently for the first time since I have been at Duke.

Dr. Beard did have a very warm heart once one succeeded in penetrating his gruff ways. Once I told him, exuberantly as it were, that I had just purchased a lot in Duke Forest, dreaming about owning a house and, above

all, a workshop in which to build things, furniture most of all. He immediately asked me when I was going to build the house and how I was going to finance it, knowing my background. I suggested that I was not worried about that because I had two years until I had to put up the edifice. He offered me \$2,000, just like that, and I started building within a month or two. I have heard over the years that he did that with many. I saw Mrs. Beard shortly after her last operation at Duke. She was in superb shape, but she told me that her life had come to an end with her husband's demise. Within a few weeks she was dead. Not exactly without precedence that, among individuals made for each other as Doty and Joe were.

Dr. Beard was an extraordinary man. When I saw Dr. Forbus for the last time at Duke hospital, Dr. Beard asked me if I had thanked him for what he surely must have been to me. I said yes. A few months before he died, I wrote Dr. Beard a letter saying the same to him. I am lucky.

No, I don't adulate Dr. Beard, nor anybody for that matter. But I am most comfortable to have lived in the presence of people like him, whose presence is real and, almost by definition, justifies the joy of living this life.

Joachim R. Sommer, M.D.
Box 3712 DUMC
Durham 27710

Each Person Can Make a Difference

To the Editor:

To discuss abortions without mentioning overpopulation is like discussing fish without observing that fish live in water.

Abortions are not performed in operating rooms in the sky. They take place in societies which have limited capacities to raise, care for, and provide a satisfactory life for new offspring.

The Chinese do not promote abortions because they like to destroy Chinese fetuses. Instead, the Chinese are compassionate and intelligent. They realize their capacity to provide a satisfactory life for children is limited. Regardless of how intensively cultivated, their land can grow only so much food. Abortions are better than having infants and small children die of starvation and related diseases.

The United States already has evidence of severe overpopulation. We have a twin deficit of budget and trade. We live partly on borrowed resources, oil produced in other countries. We have a drug problem. We have a growing prison population, many of whom could not find a place in society. Some old people live in poverty and financial insecurity.

Fish do live in water. Abortions do take place in societies. To properly evaluate abortions, we should examine the entire picture, not just an isolated part of it.

Albert D. Warshawer, M.D.
1608 East Fifth Street
Greenville 27834

From *The Medical Journal of Australia*

**Warts and all
To the Editor:**

In December an anxious mother brought to me a delightful five-year-old, who had a digital wart. I offered to buy the wart from him. He was delighted when I gave him 20 cents, telling him he could keep the wart for three or four weeks, after which it would drop off, come to me and be mine. If this did not happen he was to return the 20 cents!

I thought no more about it until I had a letter three weeks later from the mother, stating that the wart had gone. Two days after this I noticed the development of a single digital wart on myself!

I write to warn your readers of yet another danger of general practice. (*PS: For sale, one digital wart, price 50 cents — yes, 50 cents — you see, I have these overheads.*)

John Troller, FRACGP
Kable Avenue,
Tamworth, NSW 2340

Pearls for Perfect Practice Under PRO

To the Editor:

Thinking about how to study a patient's problem is now (and always has been) an out-patient procedure.

Reviewing data, including slides, x-rays, op notes, path reports, and discharge summaries, is an out-patient process.

When a patient requests time in days to think things over,

they must be informed that such a process should be carried on out-of-hospital.

Coming from a distance, even a great one, is not by itself an indication for hospitalization.

One shouldn't use the hospital to obtain a consultation in order to determine whether a particular invasive procedure is indicated.

If you can conclude that what you want to do for/to a patient could be accomplished in the clinic provided: that individual lived near by; you weren't real busy; you weren't going on the road; and you had time to review the studies/advise the person, then the chances are a review specialist for PRO would *deny* such an admission even when those descriptors do not obtain.

Whenever possible, a physician should mentally walk through the hospital stay of an elective admission, focusing upon inter-relationships between invasive studies, days of the week, and the anticipated next step once the outcome of such studies is known.

The telephone is not always dependable, therefore when in doubt about the need for hospitalization, see the patient in clinic/office first.

Don't turn over complete responsibility for sanctioning admissions to your secretary — review the new referral or "old" patient's clinical descriptors yourself.

Harold R. Silberman, M.D.
Duke University Medical Center
Durham 27710

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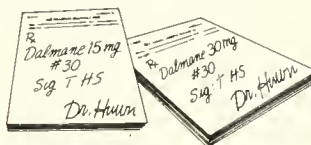
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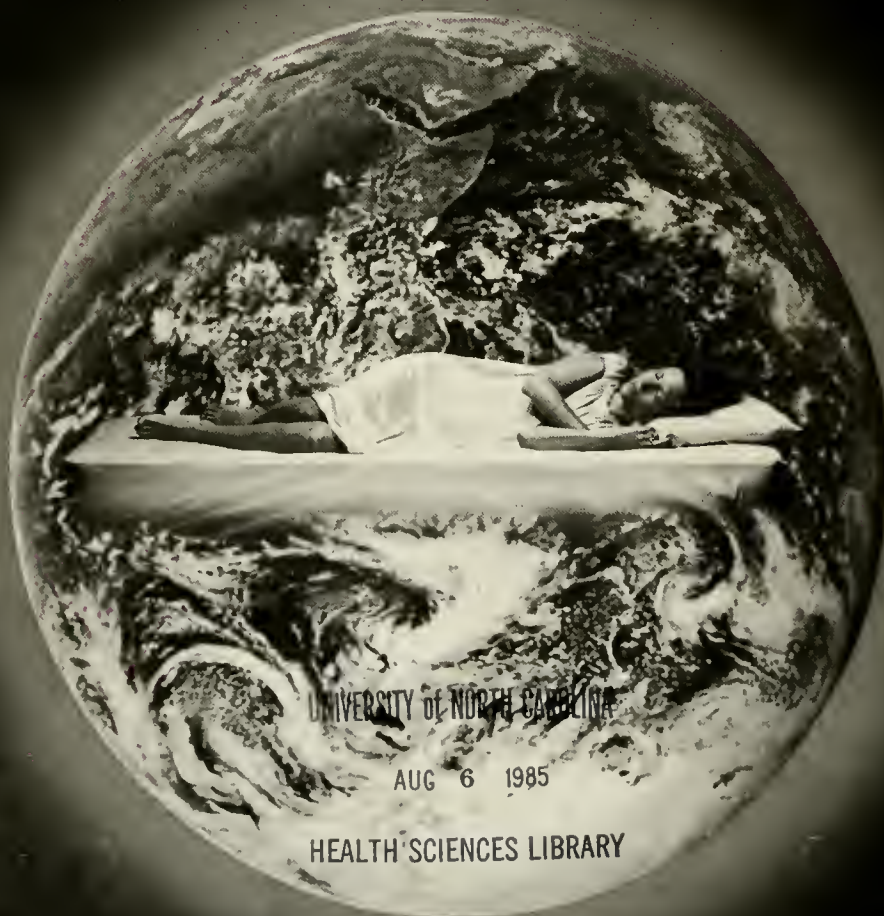
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North Carolina

MEDICAL JOURNAL

for doctors and their patients

The Official Journal of the NORTH CAROLINA MEDICAL SOCIETY

September 1985, Volume 46, Number 9

Mountain AHEC: A Bridge to the Community

This issue comes to us from the Mountain Area Health Education Center in Asheville and is edited by Daniel L. Dolan, M.D.



Cardiac Surgery in Asheville

by Kent W. Salisbury, M.D., page 475

Asheville: The Tuberculosis Era

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Family Medicine at Duke: A Followup

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for doctors and their patients

volume 46, no. 9, September 1985

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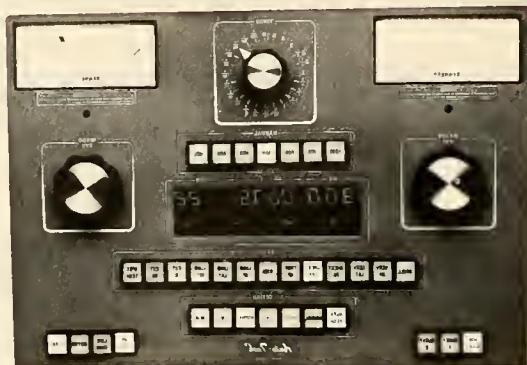
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Asheville 1985

Daniel L. Dolan, M.D.

THE medical community in Asheville is in a state of ferment. Fear and anxiety concerning physician excess, multiple prepaid health care schemes, DRGs with their eventual impact on physicians, and the opening of a new emergency room requiring coverage are high medical concerns locally. Despite the many problems, Asheville remains productive. A combined medical-surgical approach to coronary artery disease is yielding an 82% rehabilitation rate for myocardial revascularization (see review by Dr. Salisbury). A unique, low-cost, apparently safe approach to alcohol detoxification is described by Dr. Martin. An absolutely fascinating account (particularly to Asheville residents) of the early history of tuberculosis in Western North Carolina is presented in the Special Article by Dr. Stephens. I have been personally amazed to learn the background and history of places that I pass driving to work every morning. It reads like a novel and I recommend it with enthusiasm. Dr. Warren Cole, celebrated Professor Emeritus of Surgery at the University of Illinois, presents evidence that immune responses become temporarily suppressed in the perioperative period. He reviews the relationships between immunosuppression and oncogenesis.

From Mountain Area Health Education Center, 501 Biltmore Avenue, Asheville 28801.

The Mountain Area Health Education Center celebrated its tenth anniversary this past year. I have asked Drs. Bacon and Mauney to review its history and early beginnings, while it looks to its second decade of service to the region.

A local delicacy is a strong onion-like plant known as a "ramp." There is an annual ramp-eating festival here each spring. Dr. Crummett reports a near disaster with amateur ramp foragers. As with mushrooms, it pays to be certain of the identification.

Dr. Gentling reports an extensive experience with a commonly used procedure: needle aspiration of breast lumps. Dr. Paschal describes results of the initial reported use of chemotherapy for a rare malignancy. These are the highlights; there is more.

We have solicited the response of six primary care physicians in the community to the new Blue Cross/Blue Shield IPA — the Personal Care Plan. Two internists, two family physicians, and two pediatricians have responded and you may read their reactions. This plan is only now beginning to be marketed in western North Carolina and will be the first prepaid plan to appear here.

Lastly, I would like to thank Dr. Stead for sharing editorship with me for this Asheville edition. I hope the readership finds something of value as well as pleasure in its contents.

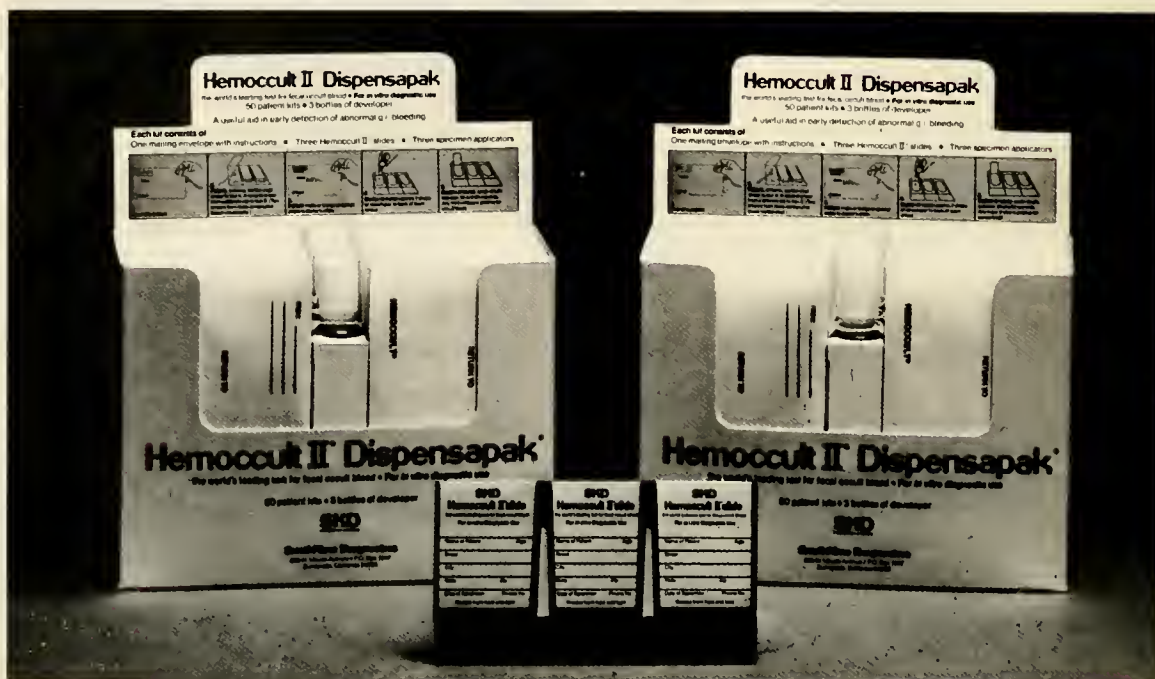
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Dolan's 4th Aphorism

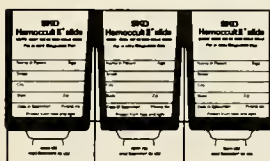
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Family Medicine at Duke: A Followup

E. Harvey Estes, Jr., M.D.

Dr. Robert Sullivan's review of the Family Medicine Program at Duke, published in the June 1985 issue of the North Carolina Medical Journal (NCMJ 1985; 46:329-31), cited some of the environmental problems facing such a program within a tertiary medical center.

It was written at a point in time when the demise of the Duke Family Medicine Program seemed imminent and inevitable. Fortunately (from the writer's viewpoint), circumstances changed, and on Thursday, July 11, 1985, Durham County General Hospital and Duke University Medical Center, co-sponsors of the Duke Family Medicine Program, announced that they would continue sponsorship of the program, and that recruitment of new residents for July 1986 would begin immediately.

Thus, Family Medicine will continue at Duke, at both the undergraduate and the resident level, but the events at Duke have sparked a national debate over the necessity for an educational program in Family Medicine within the increasingly complex tertiary hospitals associated with medical schools.

It is interesting to review the reasons given for initiating a Family Medicine Program at Duke in the early 1970s. These are as valid in 1985 as they were then. These reasons, as presented in 1973, are reprinted below. The economic reasons for a family medicine presence are much more urgent in 1985 than they were then. Family physicians are still in short supply, in spite of a growing surplus in other specialties. They are actively sought by HMOs, especially those emphasizing the "case manager" approach. Since HMOs are rapidly increasing in number and in patient enrollment, and since all specialty-based institutions need an ever-widening primary care base, it is urgent that they train physicians for these roles, and maintain contact with them following their training.

Those responsible for reconsideration of the role of Family Medicine at Duke are to be commended for their decision!

THERE are a great variety of reasons why Duke should have a strong, well supported Family Practice Program. These reasons can be grouped into four categories — ethical, educational, economic and political. I would like to discuss each in turn.

A. Ethical

As a medical school, we have an obligation to meet the medical needs of the people we serve.

I can present a strong case that medical schools have become autonomous to the point of becoming self-serving. The Flexnerian model of a strong biologic base for medicine has been used as a justification for creating and maintaining a gross imbalance in the quality-quantity tradeoff in medical services. When the citizens of Pinetops, Bat Cave, and even Durham complain that they cannot get medical

help, our answer is that it is impractical to expect that medicine can be dispersed so widely — and that they should, instead, come to Duke, or some other center offering specialty services. This is the medical equivalent of Marie Antoinette's "Let them eat cake!"

I would not argue that we should provide a brand of quackery and call it medicine, but I do contend that a broad based generalist, who is not "turned off" by seeing common illnesses, who is willing to be concerned about convenience, access and cost, and who is willing to train and use a team of assistants is a much needed product — more so than many of the products we are now training.

The usual answer is "But that's not Duke's role! Let East Carolina do it." It is a difficult job, but that should certainly be no justification for assigning that task to a school less capable than Duke.

I do not say that we have been wrong for the past 40 years, but I do say that times have changed, and that we should change with them. We no longer have a state filled with variably trained generalists and no specialists as was the case in 1930. We have the opposite — many specialists

From 407 Crutchfield Street, Durham 27704.
Presentation made at the Quail Roost Conference — An annual conference for review of educational programs for medical students at Duke, May 15, 1973.

and few generalists — and we should have the courage to face the facts and change our course accordingly.

B. Educational

Duke has an obligation to provide a spectrum of models of practice for its students, all of high quality, and each treated with equal respect, both philosophically and materially.

We have not met this obligation. We do have a family practice program, which is doing very well, considering its environment. If you infer from this remark that the environment is not a healthy one, you are right! I hasten to add that it is not finances and/or space that stunt healthy growth — though both are indeed needed. Money alone is not enough without a change in attitude. At the present time, medical students and young doctors are often discouraged from considering family medicine as a career because of the comments made about it by respected and senior members of other branches of medicine. I am sorry to say that similar remarks are then used, without objective evidence, as a justification for lack of support for such programs. "Since so few of our students go into family medicine, we don't need to seriously consider attention to this field of training."

I accept the fact that a teaching medical center, especially a private school, should not accept a larger service obligation than it needs to support its teaching and research needs. On the other hand, we do need an example of continuous, high quality, convenient primary care so that our students can see first hand that such a thing exists! I therefore include such a model under the rubric of education rather than service.

C. Economic

A medical center is the apex of a broadly based pyramid of facilities — doctors' offices, clinics, community hospitals, area hospitals — etc. *We must continually protect, rebuild, and expand our referral base.*

For twenty or thirty years, Duke has engaged in a cannibalistic educational process. We have trained highly competent specialists and subspecialists, who have gone to the larger towns and hospitals in the state, and immediately begun to siphon off those clinical problems which once were sent to Duke. I suspect that this is a subject of concern with several clinical sectional chiefs! I propose that a healthy, expanding referral network, based in high volume, high quality family practice settings is a viable counterbalance to this trend.

Curiously, the economics of rural medicine have been used as an argument against family medicine: "Doctors just won't go to smaller towns, therefore we should only train general internists, pediatricians and surgeons who will practice in multispecialty groups." This is in many ways similar to the argument that our students don't go into family medicine, therefore we should not train them.

The internist, pediatrician, surgeon combination must have the support of a fairly sophisticated hospital, which limits choice of location. — But there is more! Doctors want to practice in groups, and groups of three seem to be the ideal size. An internist, pediatrician, surgeon combination is *not* a group, since no one can cover for anyone else. Ideally there must be three internists, three pediatricians and three surgeons.

For practical purposes, this limits such groups to cities of at least 20,000-25,000 people, since this is the population

needed to support both the hospital and patient volume needs of such a group. There are only 14 towns in North Carolina which meet such specifications. There are only 36 towns of over 10,000 in North Carolina. Towns such as Hillsborough, Roxboro, Oxford, Warrenton, Pittsboro are in the below 10,000 group. My point is — we have trained people who, for economic and professional survival, *must* go to larger towns, so it is not surprising that they have not gone to rural areas. Generalist/specialist (Internal Medicine, Pediatrics, Surgery) teams must go to towns of 25,000 and up in order to survive, and subspecialists probably require a population base of 100,000 and up, but generalist (family practice) groups can thrive in towns of 5000, a suitable base for a rural ambulatory center.

The importance of this is closely related to the point previously made. If it is our ethical duty, as I believe it is, to fit our product to the needs of the population, then we should concern ourselves with the problem of rural medical care. This is a huge problem, nationwide in its scope, and terribly difficult to solve. I believe strongly that the provision of a cadre of doctors who *can*, if they choose, go to smaller towns and survive is an obligation which we should accept. If this is an unattractive job for a doctor, then we have an obligation to find out why, and to learn to correct this problem — new organizations, teams of individuals, new funding patterns, etc. To say that we should not concern ourselves with the *problem* is neither constructive or responsible.

D. Political

This category is the area in which all the other categories become translated into action on a public policy level and on the level of expenditure of public funds. *If we expect continued public monetary support, we must answer public needs.*

I recently attended a conference on ethical issues in medicine. The head of a major institute, in which ethical issues are under intense study, was asked who should make the final decisions regarding certain major ethical issues. His statement was that he would far rather trust 1,000 average men from Kansas to make wise decisions for the benefit of mankind than to entrust this to 100 "experts" who have studied the problems in detail.

Politics is the way in which these "average men" make their will known. In this arena, you should note the fact that several state legislatures have now required their state schools to produce family practitioners. In states in which the state school has *ignored* this call, new medical schools have been created, and the state dollars are now split several ways. East Carolina derives most of its support from those who do not have access to primary, generalist care. The N.C. Legislature now has a bill before it which would set aside one million dollars for the private medical schools in this state, if they are willing to establish a co-equal Department of Family Practice. This bill will probably not pass, but is should be noted as a *strong* indicator of the will of the people, as read by the legislature.

The message is clear: If we wish the support of the public, and public funds, we must listen to the message.

The message is — people want access to medical care. They want easy access, relatively inexpensive access, and continuous access. We, as a medical school, should be listening. I contend that a strong family practice program is a *necessary* part of that responsibility!

A collection of various colored and shaped pills (tablets) scattered on a dark blue background. The pills include a large white one with a score line, a red one, a green one, a blue one, a pink one, and several others in shades of orange, yellow, and grey. Some are whole, some are split, and they are arranged in a somewhat haphazard manner.

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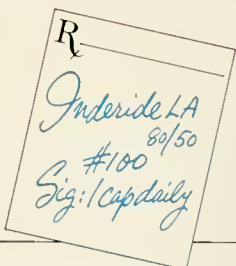


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WARNINGS

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CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary they can be used with close follow-up in patients with a history of failure who are well compensated, and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE: continued use of beta blockers can in some cases lead to cardiac failure. Therefore at the first sign or symptom of heart failure the patient should be digitalized and/or treated with diuretics and the response observed closely or propranolol should be discontinued (gradually if possible).

IN PATIENTS WITH ANGINA PECTORIS: there have been reports of exacerbation of angina and in some cases, myocardial infarction following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned, the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

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DIABETES AND HYPOLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure.

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Thiazides should be used with caution in severe renal disease. In patients with renal disease thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic blocking drugs. Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

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CLINICAL LABORATORY TESTS: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase. DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs, such as reserpine, should be closely observed if propranolol is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies, in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS: Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

Hydrochlorothiazide:

GENERAL: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals.

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs irrespective of cause are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present or during concomitant use of corticosteroids or ACTH.

Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content. Any chloride, sodium, and potassium deficiency usually does not require specific treatment except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hypernatremia may occur or frank edema may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Diabetes mellitus which has been latent may become manifest during thiazide administration. If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid dysfunction.

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function.

DRUG INTERACTIONS: Thiazide drugs may increase the responsiveness to tubocurarine. The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

PREGNANCY: Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

NURSING MOTHERS: Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Propranolol hydrochloride (INDERAL[®]):

Most adverse effects have been mild and transient and have rarely required the withdrawal of the drug.

Cardiovascular: Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometric tests.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia, LE-like reactions, psoriasisform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

Hydrochlorothiazide:

Gastrointestinal: Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis, sialadenitis.

Central Nervous System: Dizziness, vertigo, paresthesias, headache, xanthopsia.

Hematologic: Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

Cardiovascular: Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics).

Hypersensitivity: Purpura, photosensitivity rash, urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis), fever, respiratory distress including pneumonitis, anaphylactic reactions.

Other: Hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness, transient blurred vision.

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

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The Mountain Area Health Education Center: A Unique University/Community Partnership

Thomas J. Bacon, Dr.P.H. and F. Maxton Mauney, Jr., M.D.

• *A historical look at the Mountain AHEC since preparations for it began among local physicians in the early 1970s.*

THE Mountain Area Health Education Center (MAHEC) has been a vital and integral part of health professions education in western North Carolina for more than a decade. Like the other eight AHECs in North Carolina, the Mountain AHEC's major goal is improving the supply, diversity, geographic distribution, and quality of health professionals practicing in its 16-county region. This paper reviews the development of the area health education center concept, the historical advances and organizational growth of the program in North Carolina and especially in the mountain region, the major programs of the Mountain AHEC, and some of the more significant results that MAHEC has achieved in its first decade.

Historical Context

The North Carolina AHEC Program is a unique partnership between the university health sciences centers and communities throughout the state. The AHEC Program's primary mission is to improve the geographic distribution and retention of well-trained health professionals and support personnel to meet the *primary* health care needs of the people of North Carolina. Under the leadership of the University of North Carolina at Chapel Hill, the AHEC Program has evolved into a statewide educational effort that includes the other university health sciences centers in our state as well as numerous community hospitals, other university and community college institutions, technical institutes, practicing health professionals and support personnel. The AHEC Program is a collaborative effort to:

1. provide medical, dental, public health, pharmacy, allied health, and nursing students with educational opportunities throughout the state;
2. expand and enhance regional capabilities to train nursing and allied health personnel;
3. expand the regional capability to train primary care medical residents, especially in family practice;
4. increase opportunities for continuing education, inservice education, and individualized technical assistance and consultation for all health professionals;
5. provide a regional network of library and media centers that links the needs of health care providers and institutions to the most up-to-date biomedical and information resources.

The AHEC Program in North Carolina grew out of a series of community-based initiatives developed in the decade of the 60s, culminating in affiliation agreements between the UNC Chapel Hill School of Medicine and several community hospitals throughout the state. In 1970, a report by the Carnegie Commission recommended the creation of area health education centers throughout the nation. Several communities in North Carolina, including Asheville, were targeted by the Carnegie report as potential sites for an area health education center. Through a federal contract with the Bureau of Health Manpower Education of the then Department of Health, Education and Welfare, the UNC Chapel Hill School of Medicine undertook to develop a demonstration AHEC program in 1972, culminating in the establishment of three AHECs in North Carolina. In 1973 the UNC Board of Governors adopted a statewide plan for medical education, and recommended the expansion of the AHEC program to encompass the entire state. During the ensuing years, with strong and continuing support from the legislature, all nine AHECs were developed and made operational, educational facilities were constructed, and the statewide system became a major component of the university system.

The Carnegie Commission Report designating Asheville as a potential AHEC site did not go unnoticed locally as several copies of the report were circulated among hospital administrators, community leaders, regional educators, and a small number of private physicians. In the early fall of 1971, a group of five Buncombe County Medical Society members met with Dr. John Glasson, then President of the North Carolina Medical Society, to discuss ways that private physicians could support, organize, foster, and receive enhanced educational opportunities from a community-based medical education center. There was consensus that for this type of program to succeed in the Asheville region, a consortium of local and regional hospitals, as well as their medical staffs, would have to be developed.

A small steering committee met regularly during the winter of 1971 and early 1972 and rapidly expanded to include the Chief Executive Officers of Memorial Mission and St. Joseph's Hospitals, a Board of Trustee member from each hospital, and several members of the Buncombe

From Mountain Area Health Education Center, 501 Biltmore Avenue, Asheville 28801.

County Medical Society. These persons eventually established the Health Education Commission of Western North Carolina which remained active until the Mountain Area Health Education Center was further organized.

The Health Education Commission of Western North Carolina obtained pilot funding in 1972 of approximately \$36,000 through the Veterans Administration headquarters with the endorsement and close collaboration of the Oteen VA Hospital. Both Memorial Mission and St. Joseph's Hospitals contributed "in-kind" facility and staff support. With the assistance of many local governmental and educational institutions, the existing but fragmented health education programs throughout the 16-county region were inventoried and analyzed. Contemporary regional health manpower demographics were gathered and updated. A medical consultant was hired for assistance in writing and submitting several grant applications to private foundations and to the Bureau of Health Manpower Education of HEW. The federal grant application received a favorable review by the Bureau of Health Manpower Education but funding was not approved. This aggressive, tenacious, and frustrated Health Education Commission of Western North Carolina provided fertile ground indeed for nurturing the expansion to Asheville of the AHEC Program.

Even though the Health Education Commission of Western North Carolina was working diligently on the project and relying heavily on its physician members who were representing organized medicine in the community, there was a notable lack of unanimity amongst doctors in Asheville and environs concerning the AHEC concept. In mid-1972, the Buncombe County Medical Society Executive Committee formally endorsed the AHEC project and recommended that the County Society mount a collaborative effort with the two major private hospitals. At this point, Dr. Wayne Montgomery, President of the Buncombe County Medical Society, contacted the AHEC Division of the Dean's Office at UNC-CH to explore the feasibility of expanding the existing pilot state AHEC Program to Asheville. Local physicians took a strong leadership role at this point and the initial meetings were exclusively with Medical Society members at the Medical Society's express invitation.

Dr. Glenn Wilson, the first state AHEC Program Director and Dr. Eugene Mayer, Deputy Director (now Director), led the discussions in Asheville in the early part of 1972 and again in November-December of 1972. Slowly and steadily, support and understanding of the AHEC concept expanded. Unfortunately, there were no monies to expand to Asheville immediately, but in early 1973 the University of North Carolina Board of Governors adopted a statewide plan for medical education and recommended the expansion of the AHEC Program to encompass the entire state. The Asheville groundwork was in place and the two years of intensive planning paid off, for the speed with which the Mountain AHEC was organized, funded, and implemented was impressive.

In early 1973, there existed a Buncombe County Medical Society Advisory Committee, which formed the core of what would eventually become the Board of Directors of the Mountain Area Health Education Foundation, Inc. (Membership: three members of the Buncombe County

Medical Society and two members each from Memorial Mission and St. Joseph's Hospitals — the Chief Administrative Officer and a Trustee from each hospital). There was also a letter of agreement with the University of North Carolina at Chapel Hill, and in the words of Henry S. M. Uhl, M.D., first director of the Mountain AHEC, there were "high hopes sustained by optimism and a vision."

The Mountain Area Health Education Center Charter Board was authorized in 1973 to recruit a Director. Dr. Henry Uhl was appointed and assumed his duties on September 1, 1973, when the Mountain AHEC offices were established and space made available at Memorial Mission Hospital.

The Mountain Area Health Education Foundation, Inc. was incorporated in February 1974, with Dr. John McLeod elected as the first Board Chairman. Operational and capital grant contracts between the Foundation and UNC-Chapel Hill were signed in July 1974. The basic design for the educational building, a unique bridge structure joining the two hospitals, was approved in June 1974. The construction plans were approved in February 1975, and construction contracts were signed in May of the same year. Recruitment of a dynamic and highly competent educational staff was begun in early 1974 and continued over the next two years as continuing medical education programs were initiated and the framework was completed for implementing a free-standing Family Practice Residency Program and Family Nurse Practitioner Program. Both of these were approved in late 1975.

While the initial thrust of the program development of necessity was centered in Asheville and Buncombe County, the *regional* hospital and medical manpower educational needs of the entire 16-county region has always been a paramount goal of the Mountain AHEC. To that end, its board of directors, its outreach programs, and its regional priorities have expanded in a stepwise fashion over the past decade. The Mountain Area Health Education Center owes much to the countless volunteers who nourished a dream and persevered in hundreds of committee sessions until the bits and pieces of this complex organization came together and amalgamated.

Since 1975 the Mountain AHEC has grown into a large and complex education institution for health professionals. The educational activities span the entire array of health care disciplines and involve undergraduate, graduate, and continuing education. With a staff of some 65 professional and support personnel and a budget in excess of three million dollars, the Mountain AHEC has become an institutional force in the health care system of the western part of the state. The programs described below remain consistent with the overall goals and structure of the North Carolina AHEC program, yet are responsive and unique to the changing health care needs of the providers and institutions in western North Carolina.

Program Activities

Family Practice Residency Program

As one of the cornerstones of the AHEC Program statewide, the training of family physicians has been a high priority of the Mountain AHEC from its inception. Founded as a department in 1975, the Family Practice Residency

Program is an excellent example of the partnership that exists between the University of North Carolina at Chapel Hill School of Medicine and the regional health care institutions in western North Carolina. Five of the full-time faculty members are tenure track professors in the Department of Family Medicine or Department of Internal Medicine at UNC-CH. At the same time, an additional twelve are part-time community-based faculty who participate in a significant way in the teaching program. In addition, nearly 100 other community-based physicians in the Asheville area contribute their time to the residency program.

Since its beginning, the Family Practice Residency Program at the Mountain AHEC has graduated 48 family physicians as of the summer of 1984. These graduates are now practicing throughout the western part of the state as well as elsewhere in the United States.

The residency program in Asheville has developed a national reputation for its innovative curriculum, which includes a strong orientation to family systems, an emerging emphasis in geriatrics, and an increasing focus on health promotion and disease prevention. Through its high quality faculty, a curriculum responsive to national and regional trends, and a commitment to place its graduates in the underserved towns of the region, the residency is now recognized as a national model of a community-based family practice training program.

Family Nurse Practitioner Program

The Family Nurse Practitioner Program was founded at the Mountain AHEC in 1975, in close collaboration with the School of Nursing at UNC-Chapel Hill. As the only diploma program remaining in the state, the Mountain AHEC's FNP Program fills a unique need for registered nurses from all educational backgrounds seeking to expand their practice as nurse practitioners.

The program continues to receive substantial funding from the Division of Nursing within the Bureau of Health Professions of the U.S. Department of Health and Human Services. Since its inception, 96 students have graduated from the program. Of these, 62 are now practicing in western North Carolina in a variety of settings, including rural free-standing clinics, health departments, private medical practices, hospitals, and other sites. Increasing interest is being shown by industry in employing nurse practitioners to manage and staff occupational health and health promotion programs at industrial sites.

The Nurse Practitioner Program at the Mountain AHEC has a strong orientation to both behavioral sciences and geriatrics. The curriculum involves eight months of didactic training at the AHEC, followed by four months of a structured preceptorship in a practice setting.

Student Support

One of the major elements of an AHEC as envisioned by the Carnegie Commission was the rotation of students from university health sciences centers into regional AHEC centers. As a priority of the North Carolina AHEC Program from its inception, the Mountain AHEC has seen a steady growth over the years in the number of students seeking clinical placements in western North Carolina. Approximately 250 students spend a portion of their clinical time

on rotation to one of a number of clinical facilities in the mountain region each year.

An excellent example of a high-quality student experience involves the rotation of senior pharmacy students from the School of Pharmacy at UNC Chapel Hill. Each year, ten to fourteen senior pharmacy students spend an entire semester working in the Mountain AHEC region. These students are placed in hospital and community pharmacies, and are closely supervised by the AHEC Pharmacy faculty member housed at the Mountain AHEC. Students come together each week for seminars, and also participate in structured learning experiences in the clinical setting. Services provided to students on rotation to the mountain region include housing, library and media services, other logistical support such as travel, and assistance in exploring opportunities for future practice.

Information and Media Services

A major service provided to all health sciences students and practicing health professionals in the region are library and audiovisual services under the auspices of the Department of Information and Media Services at the Mountain AHEC. The library has a collection of some twenty-thousand volumes and offers a comprehensive array of information services including reference, on-line computerized bibliographic searching, inter-library loan, consultation and technical assistance, and audiovisual production. The total number of services provided to the region from the AHEC library in 1983/84 was approximately 38,000. These services were provided not only to students and practitioners in the Asheville area, but reached health care providers in all 16 counties served by the Mountain AHEC. As a matter of fact, 45% of the services were provided to practitioners in counties other than Buncombe.

Continuing Education

Another major educational priority of the Mountain AHEC is continuing education for all practicing health professionals in the region. Organized primarily around the major health care disciplines, the Mountain AHEC offers a comprehensive array of continuing education programs from one-hour lectures to courses of a month or more in length. Approximately 350 continuing education programs are put on each year, approximately half in Asheville and half throughout the other 15 counties in the region. This enables health practitioners to have access to high quality continuing education without having to incur the expense of travel to a university health science center or a major metropolitan area. Faculty from the university health science centers as well as other constituent universities and two-year colleges actively teach in these programs. Regional and national speakers are also invited to participate on a regular basis. Survey data and anecdotal evidence suggest that the availability of such a level of continuing education has had a major impact on reducing professional isolation among health professionals in the mountain region.

Consultation and Technical Assistance

As part of the overall goal of improving the practice environment for all health professionals in the region, the faculty and staff of the Mountain AHEC provide consultation and technical assistance upon request. These services

provide many individual physicians as well as health care agencies with access to the professional resources of the Mountain AHEC for solving problems relating to personnel, financial management, human resource development, and a host of clinically-related issues. The consultation is designed to augment the formal continuing education programs provided throughout the region.

The education programs described above are intended both to stand alone as services offered by the AHEC, and also to serve as an integrated and comprehensive approach to improving the educational environment for health professionals in western North Carolina. There are a number of examples of the way one AHEC program relates to another. Many of the graduates of the Family Practice Residency Program regularly contribute time teaching and precepting current residents. They are also often the individuals taking the lead in their respective counties in organizing active continuing education programs in collaboration with the staff of the Mountain AHEC. In addition, their utilization of the resources available through the library and media center further strengthen the practice environment in the small towns in the region.

Program Impact

The Mountain AHEC has had a major impact on the availability of highly trained health professionals in western North Carolina. For example, of the 48 graduates of the Family Practice Residency Program since its inception, 40 (83%) have stayed in North Carolina to practice and 75% have remained in the 16 western counties of the MAHEC region (table 1). This rate of retention exceeds that of all other programs in North Carolina, and may be unsurpassed in the entire U.S.

The intent of the AHEC-based residency programs was to place primary care physicians in the small towns in the regions that have heretofore been underserved. Table 2 demonstrates the success of the Mountain AHEC's residency program in this regard. Again, of the 48 graduates through 1984, 27 (56%) have settled in towns with a population of less than 5,000, and an additional 19% have established practices in towns of under 15,000 population. Thus, three-fourths of the graduates are practicing in towns of a size that historically has had difficulty in attracting and retaining primary care physicians. In addition, of the 36 graduates who have settled in towns of under 15,000 population, only one has not remained there permanently as of March 1985.

Table 1

**Mountain AHEC Family Practice Residency Program:
Geographic Location of Graduates**

Location of graduates	Number	Percent
Buncombe County	12	25
Other counties in Mountain AHEC	24	50
Other counties in North Carolina	4	8
Outside North Carolina	8	17
Total	48	100

Table 2

**Mountain AHEC Family Practice Residency Program:
Size of Community of Graduates**

Size of Community	Number of graduates	Percent
< 5,000 population	27	56
5,000 - 15,000 population	9	19
15,000 - 50,000 population	4	8
> 50,000 population	8	17
Total	48	100

In 1975, there was approximately one primary care physician for every 2,000 residents in the mountain region. At the end of 1984, the ratio was approximately 1:1500 population. Although a variety of factors have contributed to the improved availability of primary care physicians, the AHEC residency program has had a significantly favorable impact on this ratio.

The second major program to address shortages of primary care providers in rural areas is the Family Nurse Practitioner Program. Since it was established in 1975, MAHEC's FNP program has graduated 96 students. The data presented in table 3 show that nearly one-half of the FNP graduates are now located in the 16 counties served by the Mountain AHEC and an additional 16% are in other counties in western North Carolina. Although not shown in the table, a substantial portion of the graduates have settled in very small towns or rural communities that either had no physician or were clearly medically underserved.

As described above, the Mountain AHEC sponsors over 300 continuing education programs per year in the region, and targets these programs to all health professionals. Table 4 demonstrates the growth in the number of programs over the past four years, and indicates the balance of programming between Buncombe County and the other counties in the region.

Attendance at continuing education programs has risen steadily over the years as well. Although physicians' attendance in continuing education continues to far exceed that for other disciplines, its absolute size and percentage of the total has declined slightly in the past three years (table 5). Attendance by nurses has increased steadily during the

Table 3

**Mountain AHEC:
Location of Graduates of the Family Nurse Practitioner
Program: 1975-1984**

Location	Number	Percent
Mountain AHEC region	47	49
Other western N.C. counties	15	16
Other North Carolina counties	20	21
Out-of-state	14	14
Total	96	100

Table 4

Mountain AHEC Continuing Education Programs by County Group

County	Fiscal year				Total
	1980-81	1981-82	1982-83	1983-84	
Buncombe	169 (57.5%)	169 (56.0%)	182 (58.1%)	196 (55.8%)	716 (56.8%)
Other Mountain AHEC counties	125 (42.5%)	132 (43.7%)	128 (40.9%)	152 (43.3%)	537 (42.6%)
Other		1 (0.3%)	3 (1.0%)	3 (0.9%)	7 (0.6%)
Total programs	294	302	313	351	1260

Table 5

Mountain AHEC Continuing Education Programs:
Attendance by Discipline

Fiscal year	Discipline							Total
	Allied Health	Dentistry	Medicine	Nursing	Pharmacy	Public Health	Other	
1980-81	1390	268	4103	1513	329	383	186	8172
1981-82	1574	335	4083	1302	334	304	109	8041
1982-83	1626	689	4472	2085	323	458	104	9757
1983-84	1823	370	3879	2184	218	675	84	9233
Total	6413	1662	16537	7084	1204	1820	483	35203

same period, such that nearly 1/4 of the total attendance at continuing education programs sponsored by the Mountain AHEC is by nurses.

Library and media services are a major part of the overall educational program of the Mountain AHEC. The data in figure 1 illustrate the growth in overall services through the Mountain AHEC Information and Media Services Department. The graph also shows that the increase in utilization has occurred both in Buncombe County and throughout the rest of the region, demonstrating the increased perception that the Mountain AHEC library is a regional resource, serving the health care providers and institutions throughout the entire sixteen western counties.

Conclusion

Since 1974 the Mountain AHEC has grown into a large, complex education institution for all health sciences students and professionals. Its educational activities span the entire array of health care disciplines and its programs have had a significant impact on improving the quality and availability of health care to the citizens of western North Carolina. Along with its sister institutions in the AHEC System, and the constituent campuses of the university system, the Mountain AHEC will continue to respond to the health manpower needs of its region, adapting programs as necessary to the changing health care environment.

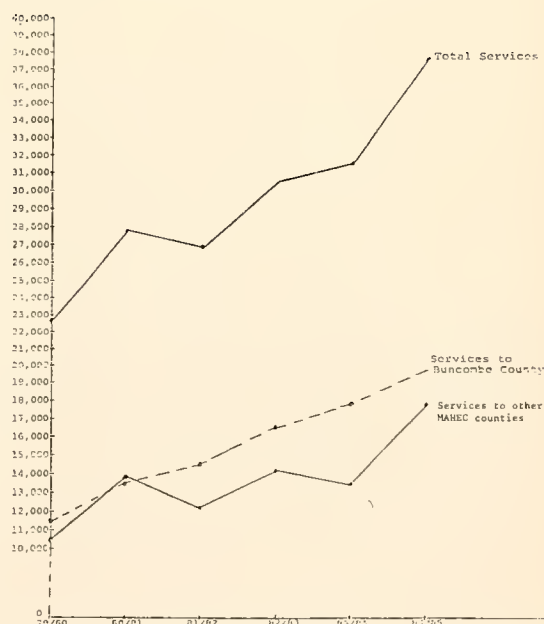


Figure 1. Mountain AHEC information and media services. Total services delivered 1979-1985, by region and Buncombe County. Total services include reference services, interlibrary loans, circulation, audiovisual production and audiovisual users.

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July 16, 1985 at 7:00 p.m. Wilson Memorial Hospital (<i>Auditorium</i>)	Wilson
September 17, 1985 at 7:00 p.m. Mountain AHEC (<i>Lecture Hall</i>)	Asheville
September 24, 1985 at 7:00 p.m. East Carolina University, School of Medicine (<i>Brody Auditorium</i>)	Greenville
October 2, 1985 at 7:00 p.m. Lenoir Memorial Hospital (<i>Auditorium</i>)	Kinston
October 29, 1985 at 7:00 p.m. Forsyth Memorial Hospital (<i>Meeting Rooms I & II</i>)	Winston-Salem

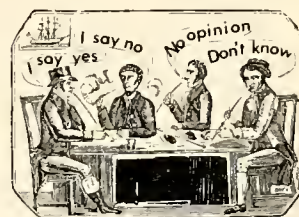
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Blue Cross/Blue Shield's Personal Care Plan

edited by Daniel L. Dolan, M.D.



The editor has queried physicians in several disciplines who practice under the rubric "Primary Care" as to how they view the effects on their practices of the new Blue Cross/Blue Shield individual practice association titled the Personal Care Plan. In brief summary, a primary care physician signs a one-year contract which can be terminated with 30-days notice from year to year. The physician agrees to accept up to 300 patients over a three-year period and be listed as a participating physician in the directory of the plan which is sold to subscribers. He must maintain hospital privileges in at least one hospital participating in the plan. He agrees to provide a four page list of services free to all subscribers in exchange for a monthly payment per patient made to him by the plan varying between \$5.59 to \$27.00 depending on five categories of age and sex. For an additional three pages of services, he will be compensated between \$.16 to \$1.58 per patient per month. Additionally, the plan credits a second monthly payment to a central Institution and Referral Fund between \$25.29 to \$55.53 per patient to cover hospitalization and consultants' fees. If at the end of one year, the cash flow in the Institutional and Referral Fund is positive, the physician retains 100% of his prepaid stipend plus 50% of his surplus. If the cash flow is negative, he receives only 80% of his stipend. In no instance does he lose more since larger deficits are guaranteed by the plan. Should he be unable to personally provide all of the services on the list, he must obtain these services from a consultant, but paying from his first fund. He maintains the freedom to continue other segments of his practice as he chooses. He must provide 24 hour per day, seven day per week coverage.

The question to the participants in this Physician's Forum was, What do you think of Blue Cross/Blue Shield's Personal Care Plan?

From Dr. Ellen Boyd, a pediatrician in Asheville

The Personal Care Plan presented by Blue Cross/Blue Shield has the advantage over other HMO type health plans whereby consumers can choose their physician and maintain an interpersonal relationship with continuous follow-up by this designated physician. It is anticipated that by having routine scheduled check-ups, education and preventive care can be taught with early screening of developing problems for the pediatric population. Under a pre-paid plan, parents will bring their children in for acute care and hopefully problems can be managed on an out-patient basis before hospitalization is required.

The Personal Care Plan may benefit a new physician in an area by helping this physician get referrals and establish a practice. With this plan, the pediatrician needs reassurance that financially his/her practice will not be hindered and will continue to have a positive growing balance. Although emphasis is given to the fact that paper work from

processing claims, billing and collections will be minimized, it is a concern that the paper work completion of encounter forms from patient visits may require more time and expense of the office personnel.

Pediatric offices presently place an additional charge for after hours visits. This encourages patients to bring their children in during regular office hours. Under the prepaid plan there is the guarantee of the standard twenty-four hour seven days per week availability of covered services to participants at no additional costs. A concern is that this may increase the demand for after hours visits and that financial incentive to come during regular office hours will be lost.

One major advantage of the Personal Care Plan is that it assures coordination and continuity of care of the participants by their personal physician. This physician is responsible for managing their health care and must authorize all referrals to specialists and preauthorize all elective in-patient and outpatient hospital admissions scheduled by

medical specialists. This plan will encourage more coordination of care between the participant and all medical personnel involved with the personal care physician managing this care.

The establishment of HMOs, industrial health care plans, and personal care plans as presented by Blue Cross/Blue Shield are proclaimed as the medical care system of the future. With the evaluation of health care expenses, the ideal restraint to escalating costs would be practicing preventive care. Still, mediocrity of medical care must be guarded against. Physicians need financial incentives and there is nothing wrong with competition in the medical arena. Competition serves as an advantage to the medically served population. Pediatricians are recognized as having one of the lowest incomes among physicians. It would be encouraging to see more equality of financial compensation for services rendered, and more compensation given for the "thinking" primary care physicians. If health care plans were to distribute the health care dollars more across the board for physicians, this would be an incentive to bring more physicians into the primary care profession where the medical need is greatest. Financial incentives should be placed among the primary care profession and it is hoped that prepaid health care plans will reflect this need. The payoff in preventive primary health care would be an overall reduction in health care expenses.

From Dr. Robert H. Fabrey, II, a family practitioner in Weaverville

At the present I do not participate in the Blue Cross/Blue Shield Personal Care Plan, because it is not offered in the Asheville Area. However, when it becomes available, my associates and I expect to participate. I am a family physician in a three man group.

I became a family physician in part because I perceive some efficiencies in the way I deliver medical care. Continuity of care is one of the tenets of family practice. Preventive medicine as manifested by risk factor control and screening for illness is an important part of our present practice. We do it because we feel it is cost effective in terms of dollars and personal suffering.

At the present time most health care insurance does not provide financial incentives for health screening. The present system encourages care of higher cost acute illness and does not reward the low cost-high touch aspects of care. The Personal Care Plan appears to address this issue, by providing funds for what now might be uncovered services. This will change my practice only in that services I already provide patients will now be reimbursed by their carrier.

I suspect that the Personal Care Plan will change my relationship with my consultants. It will force me to be more cost conscious for equal services. I expect there will be difficulties when a patient desires a consult or "second opinion" outside our office, when I can see no justification for it. I think that these are all solvable problems, but may change my practice style.

From Dr. Harold D. Schutte, a pediatrician in Asheville

Given the present climate of escalating health care costs resulting in increased interest in cost containment by insur-

ance companies and government, the primary care physician must take note of the trends that will affect his practice over the next decade. He must also deal with a physician surplus and a shrinking patient population at the same time that he copes with an uncertain economy. It is obvious that he must have an anchor for economic and professional survival.

The introduction of North Carolina Blue Cross/Blue Shield's Personal Care Plan has significant appeal. On the surface, at least, it seems to work within the framework of the present health care delivery system. It accomplishes this by a prepaid plan for cost containment and the utilization of primary care physicians already in private practice. The plan also has provisions for early detection of disease and preventive medicine education which ideally should reduce health care costs and benefit the patient as well.

As a pediatrician in private practice I would like to have options other than one single plan to choose from in order to be able to choose the one most compatible with my style of practice. The Personal Care Plan, while stressing physician involvement in peer review, does not mention the role of the primary care physician on the governing board of its plan. This type of relationship would ensure that a specialty like pediatrics would be given adequate emphasis. In my view if involvement at the board level is not an integral part of the plan it could well appropriate a large portion of its funds and emphasis to surgical procedures, with a small amount for cognitive activities. As such, the primary care physician again would end up on the low end of the financial totem pole. It is somewhat reassuring to know that in its formative stages the plan had significant physician input. The plan's track record for accomplishing its ideal goals of ensuring quality care while reducing health costs and fairly compensating participating physicians will have to await the verdict of time.

From Dr. Lewis C. Sommerville, a general practitioner in Asheville

If I did not participate in such a plan, I am sure that there would be a certain number of my patients from industry enrolling in such a plan, and I cannot, at this time, tell specifically what percentage of patients I am talking about. However, because this would occur, I would probably feel somewhat coerced into co-operating or participating in a plan if it were very widely used in our area.

What would be the effect on my practice if I did not participate? I have looked, somewhat superficially of course, at the cost. And I have looked at the total cost of caring for patients in my office over the last year. The impression I have gotten is that the "healthier" patients, that is those in the work force who would be apt to be covered by such a plan, actually take less cost for their care during the year, and this select group then would be covered by an IPA. The other type of patients — older patients, those who take more care and have a higher cost per year — would probably not be covered by an IPA because they are not involved in industry, etc. It is my impression that 80% of the capitation fee does not quite cover the charges that I am making at the present time. This would, of course, be a deterrent to my entering into this kind of plan.

The final thing, and this would seem to be the most

important, is that with a capitation fee (if I read the plan correctly) I would be required to pay consultants, lab and x-ray fees, etc., and this would tend to cut down on referrals or workups that could not be accomplished in one's own office. This, then, would tend to mitigate against the optimum care of the patient. I think, in the long run, this would tend to reduce the quality of care to a certain extent.

From Dr. Virgil Thrash, an internist in Asheville

General internal medicine is a discipline unique to the practice of medicine. The internist utilizes his diagnostic and therapeutic knowledge gained in his three to four years of residency in the multi-system dilemmas encountered in his daily office and hospital practice. These same skills are likewise invaluable in providing daily preventive and remedial primary care to the patients in his practice. Adequate time allowed for each complete physical, office visit, and hospital consultation is an absolute necessity in accomplishing these goals. An average day for any of the four general internists in our Asheville practice consists of usually twelve to fourteen office visits, each fully fifteen minutes, and four complete physicals, each one hour. Our patients are scheduled from 9 AM to 5 PM, and our hospital practice is managed pre and post office hours.

The well-trained internist cares for his patients with minimal consultative assistance from various subspecialists. With the assistance of the usual office laboratory, x-ray, and electrocardiographic equipment such care can be given both conveniently and economically. The same attempt for complete comprehensive care is also given to the patient requiring hospitalization.

Blue Cross/Blue Shield of North Carolina suggests that the answer for providing preventive, complete, economical primary care should be directed at the primary care physician. These physicians are to be saddled with the responsibility of providing or acquiring the cheapest care possible for their patients. They are to be rewarded with year-end bonuses depending on how adept they are at performing fewer diagnostic tests, admitting fewer patients to the hospital and utilizing the least expensive consultants, both medical and surgical. The comprehensive physical examination would become non-existent. The fifteen minute office visit, in which not only is the chief complaint addressed but also a brief update of the patient's problem list is made, succumbs to the hurried three to five minute encounter in which an honest effort is made to diagnose a chief complaint. Regardless of good intentions, the office visit would become thus shortened in order to accommodate more HMO participants in a financially embarrassed practice already struggling to pay a fifty percent overhead.

The increasing cost of medical care is evident. Industry is understandably attempting to place a lid on these spiraling costs, and at the same time to provide good medical care for its employees. The correct answer to this dilemma is not to force the primary care physician into a position of being "hatchet-man" for the skyrocketing costs of consultative fees and procedures, surgical fees, and hospitalization expenses. Instead, the insurance providers and industry should attack the source of the problem themselves. Evaluations should be made and maximal allowable fees established for the various surgical, medical and radiographic

procedures. "Unreasonable fees" should not be paid even when performed during a hospital stay covered by major medical. Patients should be encouraged to seek inquiry concerning excessively high medical fees. Perpetual "high fee" offenders should be excluded from insurance reimbursement. Efforts to encourage and enforce more expeditious use of hospital beds should continue.

The general internist, recently having received much of the impact of the newest Medicare reimbursement plan, needs no part of a program designed to destroy his comprehensive care of patients. Industry does, however, desperately need our participation in providing an innovative, alternative answer to this major problem of increasing medical costs.

From Dr. Robert Wells, an internist in Asheville

These remarks will be addressed primarily to the Blue Cross/Blue Shield Personal Care Plan and how it would affect my practice of medicine. However, to a certain extent they apply to the HMO concept as a whole. There are certain advantages that any primary care physician would find by participating in the Blue Cross/Blue Shield Personal Care Plan. I think some of these advantages are very attractive, especially to the physician who is just entering practice. With any HMO there would be a guaranteed income. A primary care physician would be paid a capitation or fixed dollar amount per month for each patient in his assigned group of patients. This would provide a very stable guaranteed source of income. It would also free the physician of any problems with past due accounts and collections. Especially for physicians just coming into practice, a guaranteed income without any worries about collection expenses seems very attractive. The Personal Care Plan also offers the physician the ability to retain his own fee for service patients and his own independence by operating out of his own office. He remains independent in the hiring of his own office staff, the internal office management, and may exercise his own practice style. This is in sharp contrast to the Kaiser model of HMO in which the physician sees only those patients who are subscribers to the HMO in a clinic building that is owned by the HMO with the clinic policy being controlled by the HMO.

Another very real advantage to the Blue Cross/Blue Shield plan is that it places the primary care physician at the entry point to the health care system. By this very fact, the primary care physician can take care of 80-90% of the usual health care needs of any individual. In theory anyway, this would cut down on unnecessary referrals to specialists for a problem that could be handled by the primary care physician. Any patient who wished a referral would have to have the approval of the primary care physician before any subspecialty or specialty referral or self referral could be done in order for the patient to receive reimbursement from the plan. In the traditional system of health care delivery in this country, patients may seek entry to the health care system at any level they wish. The way the Blue Cross/Blue Shield plan is set up, it should serve to cut down on unnecessary tests, procedures, referrals, and hospitalizations. At least in theory, this should provide an overall decrease in health care costs. There is the added advantage to the patient over the traditional health insurance coverage

“ I have the
simplest of
tastes . . .
I only want
the best. ”

— Wilde



315 Spring Garden St. Phone 274-2404
Greensboro, NC 27435

of a more comprehensive coverage being provided at what is usually a reduced cost. The Blue Cross/Blue Shield Personal Care Plan provides a very extensive and comprehensive list of medical services which few traditional health insurance policies can rival.

There are, however, several disadvantages to the Blue Cross/Blue Shield plan as well as most other HMOs no matter what model they are organized under. First, for the physician, I think there is a significant loss of independence. Both the personal care physician and the medical subspecialist lose the freedom to set their own fees. The physician and the patient also lose their freedom to choose which medical specialist they want at the time of referral. Any referral must be made to a medical specialist who is a member of the Blue Cross/Blue Shield Personal Care Plan. The patient loses his ability to choose any physician in the community. I think inherent in this type of health care delivery system is a general loss of freedom of how the individual will practice medicine.

I also am greatly concerned about the issue of quality of care. Although each of us would like to think that he would refer any patient without hesitation if a referral was needed or if a hospitalization was necessary, under the Blue Cross/Blue Shield program the physician is actually encouraged financially not to refer to the medical specialists, not to do

various tests, and not to admit the patient to the hospital. Traditionally, these decisions have not affected the primary care physician monetarily, but with this plan the physician would be intimately involved and a conflict of interest is already established. Not only is there a reward for less testing, less referrals, and less hospitalization, but there is also a reward for spending less time with the patient. I think this type of plan would change the traditional way that Internal Medicine is practiced. Traditionally, Internists have prided themselves in being able to spend an adequate amount of time to do a very thorough and complete assessment of a patient. The Personal Care Plan does not provide any financial reward for spending the time it sometimes requires to complete a very thorough evaluation of a patient's problems. This is perhaps the most disturbing aspect of the Personal Care Plan. The financial pressure on each primary care physician would be to see as many patients as he could in a given amount of time. Another disturbing fact about the Personal Care Plan is that the medical specialist is paid on a fee-for-service basis. For every procedure he performs he gets paid and the more procedures he does, the more he gets paid, whereas the primary care physician's fees are limited and fixed. No matter how much time he spends with the patient, he still gets paid exactly the same amount. This seems to again be a system that rewards physicians who perform procedures and specific tasks and does not reward cognitive skills on the part of the primary care physician. All the pressure seems to be laid on the primary care physician to cut costs. He must cut costs by reducing referrals, reducing tests, reducing the amount of time he spends with a patient, and reducing the number and length of stay of hospitalizations. None of this pressure is placed on the medical specialist. He still gets a fee for service, he has no incentive to do less procedures or less testing, but in fact will get paid more for each additional test or procedure that is done.

I think the Blue Cross/Blue Shield Personal Care Plan does address some of the problems of health care delivery that we face in our society. It does stress reduction of the overall health care costs and does provide an increase in the amount of coverage patients receive compared with traditional health insurance policies. It furthermore returns the primary care physician back to the entry point into the health care system. However, I think many of the disadvantages of this program outweigh the advantages. There is the continued problem of providing little reimbursement for cognitive skills and yet continuing to reward the medical specialist who performs numerous procedures. There is the very real question of continuing to provide a high quality of care to patients and yet being forced by the system to spend less time with patients. I fear that there might be a tendency not to do tests which may be warranted, not to admit patients who need hospitalization, and not to refer patients who need referral. I generally dislike the idea that we as physicians are being forced to conform to the HMO brand of medicine just to provide for our continued survival in years to come.

Asheville: The Tuberculosis Era

Irby Stephens, M.D.

- *A short history of the rise and decline of tuberculosis sanatoria and experts in Asheville between 1871 and the 1950s.*

ONE hundred years ago Asheville was rapidly gaining prominence as a vacation and health resort, and within the space of a few years became the nation's largest and most famous center for the treatment of tuberculosis. To the medical historian, and to the student of tuberculosis in particular, the transformation of Asheville from an obscure mountain village to a world-renowned and major medical treatment center is a fascinating story.

At that time, tuberculosis was the most dreaded disease throughout the world and the leading cause of death in the United States. The ravages of "the White Plague," as tuberculosis was sometimes termed, were especially severe in the crowded, rapidly growing cities, relatively uncommon in the rural areas, and especially rare in the thinly populated mountain regions of Europe and the United States. Patients with consumption placed at rest and exposed to the cool, pure mountain air began to gain weight and strength, their pulmonary lesions showed evidence of healing, and the improvement was often miraculous. This gave rise to the climatic theory of the treatment of pulmonary disease, a theory originating in Germany and Switzerland and soon adopted and enthusiastically embraced by physicians in America. Physicians and patients everywhere rejoiced that, for the first time, there was a reputable therapeutic approach to pulmonary tuberculosis—a bright ray of hope in a previously dismal scene. In all the eastern United States, Asheville offered the best combination of altitude, atmosphere, and climate considered essential in the treatment of lung disease. As a result, a group of highly competent and dedicated physicians found their way to Asheville to devote themselves to treating and studying tuberculosis, specializing in phthisiology. In a day when specialization was extremely uncommon, these men and their successors became the nation's most highly regarded and most renowned experts in the field of tuberculosis. For 50 years patients by the thousands flocked to Asheville seeking the promise of health offered there.

Beginning about 100 years ago, there was a concurrent and more scientific approach to the treatment and control of tuberculosis. In 1882, Robert Koch discovered the tubercle bacillus. Koch's discovery, paired with the introduction of immunotherapy by Jenner and Pasteur, suggested the possibility of specific methods for the treatment and control of tuberculosis, stimulating widespread research in the field. One of the early laboratories engaged in this effort was established in Asheville.

For 50 years, beginning around 1885, Asheville served as a stage for the dramatic triumph of medicine over the foremost killer of the time. The stage setting and the actors in this drama will hold the attention of any audience with an interest in that singular epoch in the history of medicine.

The Pioneers: Gatchell and Gleitsmann

In 1871 The Villa, a sanitarium exclusively for patients with tuberculosis, was established in the village of Forest Hills (now the Kenilworth section of Asheville) by Dr. H. P. Gatchell, a professor from Hahnemann Medical School. He was joined by his brother, and the doctors Gatchell soon moved The Villa to Haywood and College Streets (now downtown Asheville) where they operated for two or three years, then abruptly abandoned the project and moved away. The reasons for the Gatchells' closing their sanitarium are obscure, but the event was highly important medically, as it was the first tuberculosis sanitarium in the United States, antedating the more famous Trudeau Sanitarium at Saranac Lake, New York, by more than 12 years.

Very shortly after the departure of the Drs. Gatchell, a second and more sustained effort to establish Asheville as a tuberculosis center was made by a highly capable and enthusiastic pulmonary disease expert, Dr. Joseph W. Gleitsmann. Born and educated in Germany, Gleitsmann was a convincing exponent of the European-inspired theory of the benefit of altitude and climate in the treatment of tuberculosis. After a systematic study of the climatic features of the United States, he selected Asheville as having an optimum combination of barometric pressure, temperature, humidity and sunlight believed to be conducive to the healing of the pulmonary lesions of the disease.

Gleitsmann moved from Baltimore to Asheville in 1875 and established The Mountain Sanitarium for Pulmonary Diseases located in the old Carolina House on North Main Street (now Broadway) just south of Woodfin Street. He later acquired an adjoining building to house his patients, who for the most part were referred by prominent physicians in the eastern and southeastern United States. With evangelistic zeal, Gleitsmann (a remarkably vigorous and forceful personality) addressed medical gatherings and published scientific papers extolling the benefits of the Asheville climate. He distributed copies of his papers published in many of the leading medical journals by the thousands to physicians and lay groups throughout the eastern United States.

Dr. Gleitsmann's accomplishments, moreover, were appreciated and recognized by highly competent medical

From 54 Sunset Parkway, Asheville 28801.

authorities of that day. Among these were Dr. Stanford E. Chille, Professor of Physiology and Pathological Anatomy in the Medical Department of the University of Louisiana. Chille himself on visits to Asheville in the 1870s had been impressed that no tuberculosis had been found in the native population and had recommended Asheville to a number of his tubercular patients. He visited Gleitsmann in Asheville and in a paper before the New Orleans Medical and Surgical Society reported and extolled his work. Dr. Fred Loomis of New York, patron of Dr. Trudeau, referred patients to Gleitsmann's Mountain Sanitarium, and none other than Dr. Lawrason Brown, successor to Dr. Trudeau and recognized historian of clinical tuberculosis, credits Gleitsmann with establishing the first tuberculosis sanitarium in the United States. For five years, Gleitsmann worked unflinchingly, maintaining a census of 20 to 30 patients in his small sanitarium, publishing enthusiastic progress reports and distributing them widely.

It appears, however, that Gleitsmann's enthusiasm and his dream of converting Asheville into a Mecca for tuberculosis sufferers were not shared by the local citizens. In 1880 when he attempted to expand his operation, he found his efforts to obtain more adequate quarters thwarted by local property owners who apparently feared the introduction of tuberculosis into their city and the possible adverse effect on property values. Unable to procure a building suitable for a sanitarium, he tried for one more year to house his patients in the Eagle Hotel located on South Main (now Biltmore Avenue) between Eagle and Sycamore Streets. Finding this arrangement unsatisfactory, he gave up and went to New York, giving as his reason for leaving the lack of facilities. There are no records available that adequately document these events, and we must rely upon conjecture to explain the failures of these early ventures. It is very possible that the Teutonic personalities of Drs. Gatchell and Gleitsmann did not mesh well with those of the predominantly Scotch-Irish mountain people. It may be that, being homeopathic physicians, they were not well received by the Asheville doctors, but in the words of Dr. Gaillard S. Tennant who recalls that era, "as it was, Gleitsmann probably did more than any other one man to bring this place into notoriety, for since his time the stream of travel here has been continuous."

The Beginnings: Battle and Von Ruck

Nothing is more characteristic of pioneers than that they are ahead of their time. Pioneer efforts often fail initially because they are premature. This was undoubtedly true of Gatchell and Gleitsmann, for Asheville in the 1870s was a remote, relatively inaccessible mountain village where communication was difficult and travel uncomfortable.

This was soon to change. Emerging from the post-Civil War depression years, Asheville in the 1880s was ripe for development. It was a small mountain village of 700 in 1870. On receiving its charter as a city in 1883, it had grown into a thriving boom town of 3874 (2808 with 1066 "colored"). The stimulus for this spurt of growth was the advent of the railroad. The Western North Carolina Railroad, which in 1871 had terminated at Old Fort, finally reached Asheville in September 1880, providing access from Spartanburg, Atlanta, and Charleston. In 1883 the

line was extended to Knoxville, connecting with the railroad system serving east Tennessee, Georgia, Virginia, and Ohio. Trade immediately flourished and with schedules providing overnight service from points as distant as Louisville and Atlanta, visitors came in increasing numbers to enjoy the beautiful mountain scenery and incomparable summer climate.

In this fertile soil, the seeds planted by Gatchell and Gleitsmann at last began to spring up and, tended by capable men who soon followed, began to thrive and to transform Asheville into a medical center destined to be famous for the next fifty years.

The years 1885 and 1886 were especially notable ones for Asheville medicine in that they marked the arrival of two of the most influential men ever to appear on the local scene: Dr. S. Westray Battle and Dr. Karl Von Ruck. These two outstanding physicians were to pick up the pieces left by Gatchell and Gleitsmann, and each in his own way began to build Asheville into a nationally known center for the treatment of tuberculosis.

The two men could not have been more different. Dr. Battle (figure 1), the very essence of the Southern aristocrat, courtly, elegant, and strikingly handsome in his gray Vandyke beard and fashionable attire, was endowed with irresistible personal charm. A graduate of the University of

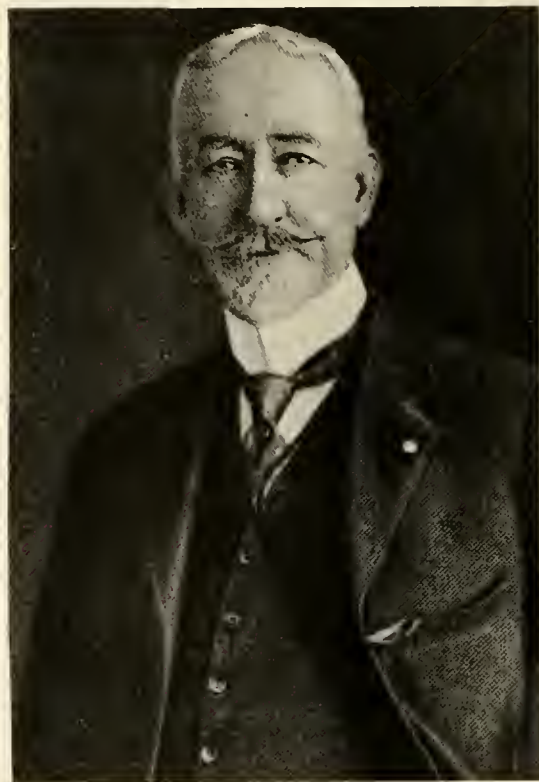


Figure 1. *S. Westray Battle, M.D., outstanding Asheville physician of the 1890 era whose enthusiasm and personal charm attracted many influential individuals, contributing to Asheville's fame and growth.*

Virginia, he studied medicine in New York and attained an M.D. degree from Bellvue Medical College. He started his career as a naval surgeon but was forced to retire because of injuries incurred on sea duty. He decided on a career in private medical practice and became especially interested in the field of tuberculosis. A firm believer in the theory of climato-therapy, he had made his own study of the eastern United States before selecting Asheville as the ideal area for the treatment of pulmonary disease. Having arrived in Asheville in 1885, within three years he had become her most ardent promoter. Dr. Battle's unreserved enthusiasm for his adopted home is manifest in his paper read before the county medical society in 1888 entitled "Climate and the Climatic Treatment of Diseases with Special Reference to the Merits of the Asheville Plateau." He stated that there is "nothing like it East of the Rockies," and concluded that Asheville's climate is "tonic, invigorating, and bracing." He also attributed an almost antiseptic quality to the air, in that "the conditions which seem to favor germ propagation and prolong the species of the genus *Bacterium* do not exist here."

Battle's professional accomplishments were modest but his influence was enormous. A widower for many years, he lived at the old Battery Park Hotel where he was a highly visible and valuable asset to the community: "he was a gifted speaker on any occasion. His diction was polished; his phraseology carefully chosen. Possessed of sparkling and pungent wit, he was at his best as an after-dinner speaker. He was a raconteur blessed with an unusually retentive memory." This portrait, quoted from the *Asheville Citizen* of April 30, 1927, at the time of Battle's death, reveals vividly the impact of the personal appearance of this fascinating man: "Strikingly individual in all things, Dr. Battle was particularly so in his attire. He never followed fashions; he set his own, and no matter what he wore, it always seemed a part of him, rather than an external decoration. His favorite headgear, outside of the formal evening silk "topper," was a soft felt hat of the wide-brimmed variety. In winter he wore a cape, reaching almost to his knees. A white flannel suit, with a black silk sash in lieu of a waistcoat, was his usual summer attire. In evening clothes, of masterful cut and fit, he was in truth the glass of fashion and the mold of form. Always he carried the small rattan cane so popular with English and Indian army officers. . . . Dressed with meticulous care, with pointed mustachios, carefully trimmed Vandyke, and a military air withal. With a cape and cane swinging as he came down Battery Park hill, across Haywood and up the avenue, is it any wonder that fellow members sitting in the windows of the old Asheville Club watched him with admiring interest?"

Dr. Battle's tremendous enthusiasm for Asheville, which he communicated widely among his numerous influential connections throughout the eastern seaboard, brought to Asheville many wealthy and enterprising individuals. These not only added lustre to the Asheville scene, but many, captivated by the climate and scenery, returned to become prominent residents and to use their wealth and vigor to enrich the area. Mrs. W. H. Vanderbilt, suffering from chronic malaria acquired on her travels, came to Asheville under Dr. Battle's care. Her son, George H.

Vanderbilt, fascinated by the area, returned to build the Biltmore House; Dr. Battle is reported to have been helpful in acquiring some of the land for Vanderbilt's Biltmore Estate. E. W. Grove of St. Louis, troubled by a bronchial complaint, was another of Dr. Battle's patients who played a major role in the growth and development of the city. Mr. Grove was so impressed by the area that he levelled Battery Park hill, considered an engineering miracle of that day, and built the present Battery Park Hotel. The street in front of his new hotel, Grove named, appropriately, Battle Square for his esteemed physician and friend. Grove went on to develop a new residential section in the north of the city, the Grove Park section, and with his son-in-law, Fred Seely, built the still famous Grove Park Inn.

Throughout a long career, Dr. Battle was Asheville's leading physician and a leader in most of the city's civic and social activities. He founded North Carolina's first chapter of the American Red Cross. After the war, he was chairman of North Carolina's Commission for Relief in Belgium, and was decorated by that country for his services. He was active in North Carolina's National Guard, served as its Surgeon General, and rose to the rank of brigadier general. Still very active at seventy-two, he died while attending a meeting in Raleigh, April 29, 1937. His impressive home on Macon Avenue still stands, now occupied by the WLOS-TV station.

Dr. Karl Von Ruck, on the other hand, was a near recluse, a dedicated scientist interested almost exclusively



Figure 2. Karl Von Ruck, M.D., aloof and controversial physician-scientist who initiated the sanitarium era in Asheville.

in medical research. He was born in Constantinople, the son of a German diplomat, and was educated in Germany, B.S. University of Stuttgart, M.D. University of Tübingen. He came to the United States and received a second M.D. degree from the University of Michigan in 1879. Interested in tuberculosis since his student days, he was present at the famous 1882 meeting in Berlin when Robert Koch announced the discovery of the tubercle bacillus. Von Ruck closed the medical practice he had begun in Ohio and thereafter devoted himself entirely to the study of tuberculosis. Possibly influenced by Gleitsmann's reports, he came to Asheville in 1886 to start a sanitarium and conduct experimental work on tuberculosis. In 1888, a memorable date in Asheville's medical history, Karl Von Ruck established the Winyah Sanitarium (figure 3), which proved to be highly successful both professionally and financially. In 1902, he was joined by his only son, Silvio, who had also become a pulmonary disease specialist. Silvio took over the operation of the sanitarium and Von Ruck was able to devote himself entirely to his studies. A brilliant and educated man, Von Ruck was not only a scientist but a scholar as well. He founded and edited *The Journal of Tuberculosis*, the first medical journal devoted entirely to that disease. Published quarterly, it contained papers contributed from leading experts in the field from all over the world. He amassed a large library and carefully abstracted on card files the entire world literature on tuberculosis, most of which at that time was in German. After his death, this invaluable catalogue was purchased by the Army Medical Library, then America's largest medical reference source.

Since his student days in Germany, Von Ruck had been interested in research. Exciting and momentous discoveries emanating from the laboratories of Pasteur, Koch and others in Europe gave promise that infectious diseases might be prevented and treated by injecting vaccines made from the newly discovered microbes found to be the cause of these diseases. In 1890, on receiving a cablegram announcing the discovery of tuberculin, Von Ruck caught the first available steamer to Europe in order to visit Koch's

laboratory and to study his methods. Koch himself provided Von Ruck with a vial of tuberculin to bring back to Asheville and use in his own investigations. Von Ruck realized that if a potent vaccine could be perfected, tuberculosis, the greatest scourge of the civilized world, could be prevented, possibly eliminated. Undeterred by Koch's initial failure with tuberculin, Von Ruck devoted his entire time and energy toward developing an effective anti-tuberculosis vaccine. In 1885 he formed the Von Ruck Research Laboratory and was joined by Dr. Edwin Klebs, one of the world's outstanding bacteriologists, who was involved in a similar project. Klebs did come up with a vaccine which he called antiphthisin, but he left Asheville after two years to become the professor of pathology and bacteriology at Rush Medical School.

Von Ruck worked on and succeeded in producing a vaccine, a watery extract of tubercle bacilli which he thought superior to any of the previous preparations. He and his son at once set about to test its effectiveness both in preventing tuberculosis in children and as an adjunct in treating adult tuberculosis. After more than ten years of extensive but largely uncontrolled clinical trials, he published his results in the *Journal of the American Medical Association* May 8, 1911, in a paper entitled "A Practical Method of Prophylactic Immunization against Tuberculosis," claiming success not only in immunizing children against tuberculosis but also in using the vaccine to treat those who had already contracted the disease. He concluded his paper as follows: "These studies I am continuing, and I hope that others will take them up also. All I feel justified in claiming at this time is that I am the first to have made a successful advent in this most important and promising field of prophylaxis in a disease that leads in the mortality statistics of the human race."

In 1914 he presented the results of his research to an international conference in London and his ideas were favorably received. Tragically, the outbreak of World War I forced the cancellation of clinical trials of his vaccine in England and Europe, and in the turmoil of a world at war his work was shelved and forgotten.

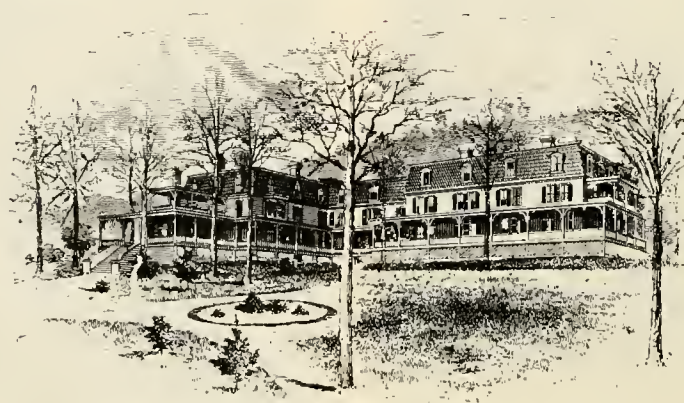


Figure 3. Winyah Sanitarium, 1896. Artist's sketch of Von Ruck's first Asheville sanitarium.

Doggedly he continued, and in 1916 in conjunction with Silvio published "Studies on Immunization Against Tuberculosis" in which he described the method of preparation of the vaccine and made further claims of benefit from the material. To his great disappointment and chagrin, Von Ruck's work failed to find wide acceptance among his colleagues. In fact, he was subjected to a great deal of criticism and ridicule, difficult for a man of his nature to tolerate.

In 1918 Silvio Von Ruck went to New England to administer the vaccine to children in a large orphanage as part of their study. He contracted influenza and died two days later in New York City. Silvio's daughter, Von Ruck's only grandchild, also contracted the disease and died within forty-eight hours on the train back to Asheville. Karl Von Ruck never recovered from this blow, but he lived on in his Asheville mansion another four years. His wife died in 1921, and he died a year later of nephritis at age seventy-three. In 1921, one year before his death, two French bacteriologists, Calmette and Guérin, using, as suggested earlier by Klebs, an attenuated strain of the tubercle bacillus, produced BCG vaccine, the first really effective vaccine against tuberculosis and the one in widespread use today. One cannot discount the value of Von Ruck's years of hard work and his contribution to the field of immunity to tuberculosis. But for Asheville, his great contribution was that he ushered in perhaps the greatest era in Asheville medicine — the era of the great tuberculosis specialists who came to study under Von Ruck, became master clinicians, and were the ones finally responsible for establishing Asheville as the outstanding tuberculosis center in America.

Asheville's Great Tuberculosis Specialists

The fruits of Battle's and Von Ruck's labor were not long in appearing. Several local physicians became students of tuberculosis, soon acquired a mass of experience, and developed considerable expertise in the field. Notable among these were Drs. J.M. Burroughs, L.B. McBrayer, and John Hey Williams. Asheville's future, however, was shaped primarily by several young physicians who came to study under Von Ruck at Winyah Sanitarium. These became the famous "TB" specialists of Asheville.

The first was Dr. Chase P. Ambler of Ohio. Ambler graduated from Western Reserve Medical School in 1889, and on the advice of his dean came to Asheville to work with Von Ruck. Though trained in laryngology and ophthalmology, Ambler was primarily a specialist in pulmonary tuberculosis. Much later, in 1922, he built his own fifty-bed sanitarium called Ambler Heights, which served as a model for similar institutions elsewhere. Over the years several physicians were associated in practice with him, including his son, Arthur C. Ambler, who joined him in 1921. He did not confine himself to his own sanitarium, where he welcomed the other "TB" specialists as members of the staff, but also participated as a leading figure in the other Asheville hospitals of his day. He reorganized the Merriwether Hospital after its founder's death, serving as Chief of Staff and dean of its nurses' training school. He was a consultant at St. Joseph's Sanitarium. In civic and national affairs he achieved even greater fame. Ambler was a naturalist and an enthusiastic sportsman, enjoying hunt-



Figure 4. Chase P. Ambler, M.D., Von Ruck's first resident; one of Asheville's early TB specialists.

ing, fishing and all aspects of outdoor life. He was a founder of Asheville's Audubon Society and is given credit for initiating laws requiring hunting and fishing licenses in North Carolina and providing for wardens to enforce those laws. A National Park in western North Carolina was suggested by Ambler as early as 1899, and he thereafter devoted a great deal of time and energy toward that end. He personally organized the Appalachian National Park Association which later became the American Forestry Association. Mt. Ambler, a 6,000 foot peak in the Smokies along the Appalachian Trail near Newfound Gap is named for him and a plaque in recognition of his contribution to the conservation movement was appropriately placed in "The Cradle of Forestry" located in the lovely Pink Beds of his beloved Pisgah National Forest. His outstanding contributions in the National Park Movement, an idea which he proposed and pursued throughout his life, culminated in 1912 with the purchase by the Federal Government of 50,000 acres of the George Vanderbilt estate to establish the Pisgah National Forest. Dr. Ambler remained a leader in professional and civic activities until the last year of his life. He died of intestinal cancer at his home on Hilltop Road, Biltmore Forest, in June 1932.

Von Ruck's second student, Dr. William Leroy Dunn (figure 5), was to achieve even greater things than his predecessor Ambler. Dunn, also from Ohio, was a brilliant student. A near prodigy, he obtained a degree in pharmaceutical chemistry, then went on to receive an M.D.

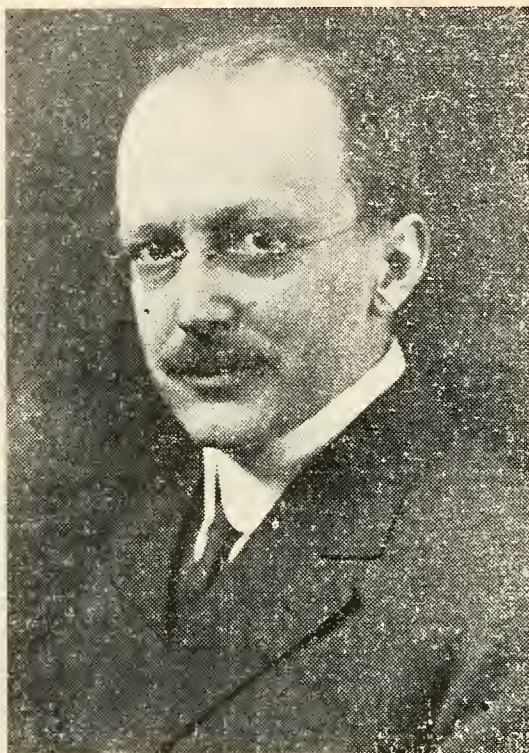


Figure 5. W. L. Dunn, M.D. (left) and Charles L. Minor, M.D. (right), the two most outstanding of Asheville's many tuberculosis specialists in the early 1900s.

degree at Michigan University in 1891 when he was only 20 years old. He was required to wait a year until he became 21 to be licensed to practice, so he spent that year and the next as assistant to the Professor of Surgery at Michigan. In 1894 he came to Asheville to work in Von Ruck's laboratory beside the renowned Dr. Edwin Klebs for two years. Upon Klebs' departure in 1897, Dunn went to Europe to study at the great university centers of Leipzig, Berlin, Vienna, and Paris. 1900 found him back with Von Ruck as house physician at Winyah, but shortly thereafter he entered practice for himself, establishing the Dunn Clinic. He was soon recognized as an expert in tuberculosis and his fame became widespread.

Dunn was also a prominent figure in medical circles and he was associated with the leaders in his field in national and international organizations related to tuberculosis. He was honored by election to the prestigious Clinical and Climatological Society and served as its president. In 1916 he was awarded an honorary degree by his alma mater. During World War I, as a colonel in the Army Medical Corps, he was sent on special assignment to Italy and was decorated by the Italian Government for his services to that country. After the war he was asked to serve on several important commissions concerned with the rehabilitation of disabled veterans. He advised on the construction of several veterans' hospitals and it was due to his influence and association with General Hines, chief of the Veteran's

Administration, that a permanent center for the treatment of tuberculosis was located near Asheville at Oteen. In 1928, hospitalized with terminal cancer, Dr. Dunn was unable to attend the dedication of the permanent buildings at Oteen and died two weeks later of lung cancer at the age of 57.

Dr. Charles Launcelot Minor (figure 5), a contemporary and later an associate of Dr. Dunn, was a brilliant young man who came to Asheville for health reasons and remained to become perhaps the most outstanding lung specialist of them all. Dr. Minor's credentials were impeccable. Born in New York, he was a descendent of an old and illustrious Virginia family. Educated at Episcopal High School and the University of Virginia, he transferred from academic studies to the Medical School and graduated with honors in 1888. He served as house surgeon at St. Luke's Hospital in New York from 1888 to 1890; then, as was the fashion in those days, he spent two years studying in the hospitals of Vienna, returning to begin practice in Washington, D.C. in 1892. He contracted pulmonary tuberculosis, however, and came to Asheville for treatment in 1895. After 18 months he was considered recovered, but by this time, he had become interested in tuberculosis and spent the rest of his life in that field. He was a remarkably able person, tall, redheaded, impulsive, forceful, energetic and imposing with a brilliant mind and studious habits. He rapidly achieved prominence as a tuberculosis specialist and was a leader in the civic and social life of Asheville. He

was also an able scholar, interested in intellectual pursuits ranging from medicine to philosophy. His excellence over a broad field was recognized by his election as an honorary member of both Phi Beta Kappa and Alpha Omega Alpha honorary societies. In the treatment of tuberculosis he stressed the importance of rest, diet, and outdoor living rather than of drugs. He was one of the first to use X-ray in the diagnosis of pulmonary tuberculosis and, later, to employ artificial pneumothorax in its treatment. He was the author of more than 50 papers on the subject of tuberculosis and was selected to contribute the chapter on "Symptoms and Diagnosis" in Kleb's famous textbook *Tuberculosis* published in 1908. Though dissimilar in personality, he and Dunn were close friends and associates. Like Dunn, Minor was active in medical organizations of which he was invariably the leader: Editor of the *American Review of Tuberculosis* for the first two years of its publication; a founder and president of the Southern Medical Association; a member and one-time president of the exclusive Clinical and Climatological Society; and the American delegate to the International Congress on Tuberculosis at its meeting in Brussels in 1919 and in London in 1921. In 1926 the University of North Carolina presented Dr. Minor with an honorary degree in which the citation by Dr. Archibald Henderson reads in part: "... he early turned the full current of his eclectic mentality upon the complex problems of tuberculosis, its diagnosis, treatment, and prevention He ranks today as an authority on that disease without a superior in the entire country. Versatile in attainments, eclectic in tastes, like the later Dr. Weir Mitchell, he has, through the magic of his sympathetic nature and the range of his interest, won alike the unquestioned confidence and ardent devotion of his patients." Still active, Dr. Minor died suddenly of a heart attack December 26, 1928 in his home in Biltmore Forest.

Another Von Ruck protege, Martin Luther Stevens, also an Ohioan, was educated in Baltimore and came to Asheville in 1899 to work under Von Ruck and became the physician-in-charge of the old Winyah Sanitarium when the new one was built on the outskirts of the city, now Spears Avenue, in 1909. He then went into practice for himself, specializing in tuberculosis, and developed an extensive practice. He owned and operated the Strawberry Hill Sanitarium located on the site of the present Rhododendron Park in West Asheville, and he served on the staff of other sanatoria as well, including Ambler Heights and St. Joseph's, where he was at one time chief of staff. Dr. Stevens was a charter member of the National Tuberculosis Association, served on the North Carolina Board of Medical Examiners, and was president of the North Carolina Medical Society in 1930.

During all these years Von Ruck was busy in his laboratory intent on perfecting a vaccine against tuberculosis. He had no interest in clinical medicine and no talent for patient care which he left to his succession of brilliant young residents and later to his son Silvio. Furthermore, Von Ruck was an austere and difficult man who did not get along well with the local physicians (who were somewhat in awe of him) or even with his own colleagues. He is described as a perfectionist, difficult to please, and sparing in his praise. His series of able associates went out to

practice on their own. None maintained a close or lasting relationship with their former chief. Von Ruck's name is pointedly missing from the numerous scientific papers published by the Asheville physicians of that period. In like manner, reference to the well-known Asheville phthisiologists is notably absent from the pages of Von Ruck's *Journal of Tuberculosis*. Even his association with Klebs, which held such promise, was a brief and unsatisfactory one.

Winyah Sanitarium continued to thrive under Silvio Von Ruck who, though a competent and attractive young man, never gained the position of esteem accorded to his father. Similarly, none of the subsequent resident physicians at Winyah attained the prominence of the early ones such as Ambler, Dunn, and Stevens. One young man, Dr. C. C. Orr, a Charlotte native, A.B. Davidson, '95 and M.D. Michigan, '04 did remain. He spent a year in chemistry and bacteriology in Von Ruck's laboratory before entering practice in 1907 and subsequently published a number of papers on tuberculosis and related subjects. He remained in active practice in Asheville almost until his death in 1960 at the age of 88. In his later years he practiced general internal medicine.

The Second Generation Specialists

By the early 1900s Asheville had become established as the outstanding tuberculosis center east of the Rockies. To care for the increasing flood of tuberculosis sufferers arriving each year, Asheville's great specialists took on associates who, typically, soon set up practice as TB specialists in their own right. Like their predecessors, many of them came as patients to be treated for tuberculosis and, having regained their health, remained to enter this field of practice. (Interestingly, the same phenomenon occurred at the Trudeau Sanitarium from which numerous pulmonary specialists "graduated," having acquired their first training in chest disease while there as patients with tuberculosis.) There were many outstanding men in this Asheville group. Dr. George Alexander, one-time associate of Von Ruck, after training elsewhere returned to Asheville to practice. Dr. Paul Paquin, friend of Dr. Battle, Professor of Medicine in St. Louis, came to continue investigative work in the field of tuberculosis. Arthur C. Ambler was initially associated with his father at Ambler Heights and later became Asheville's first physician anesthetist. W. H. Pendleton, former superintendent of the North Carolina State Tuberculosis Sanitarium, and the studious Karl Shaffle were both originally associates of Drs. Dunn and Minor. C. D. C. Colby, medical school classmate of Dr. Dunn, joined him in 1915 and helped care for the practice while Dunn was away in World War I. Carl V. Reynolds, one of an old Asheville family, eventually went to Raleigh to serve for many years as one of North Carolina's most esteemed State Health Officers. Dr. John W. Huston started a sanitarium in West Asheville and was active in preventive measures among children. Of the large group of physicians who appeared later on the scene, from 1910 to 1920, three in particular stand out as deserving special mention.

Dr. Paul H. Ringer (figure 6), a long-time associate of Dr. Minor, turned out to be the most outstanding of the



Figure 6. Paul H. Ringer, M.D., an associate of Drs. Dunn and Minor and the last of the great specialists in Asheville's tuberculosis era.

second generation tuberculosis experts. A New Yorker by birth, his background was one of culture and learning. His father was a professor of foreign languages, his mother a distinguished musician. He received his A.B. and M.D. degrees from Columbia University and trained at the Roosevelt Hospital. Like so many of Asheville's physicians of that day, he contracted tuberculosis and came to Asheville for that reason. Witty, charming, highly educated, he was in the true tradition of Dr. Minor, with whom he became associated in 1906. He enjoyed a long and illustrious career spanning more than 40 years and was accorded many honors. After serving on the Board of Medical Examiners, he was president of the North Carolina Medical Society 1935-36 and president of the Southern Medical Association 1940-41. Among other honors, he was, like Dr. Minor, a member of the Clinical and Climatological Association, Director of the North Carolina Tuberculosis Association, vice president of The National Tuberculosis Association, and regent of the American Association for Thoracic Surgery. He married an Asheville girl, the daughter of a prominent Asheville family, and entered actively into the civic and social life of the community. He was an Elder in the Presbyterian Church, a member of the Board of the Biltmore Forest Country Club, a director of

the Y.M.C.A. and of the Good Samaritan Mission, president of the Community Chest, and the 1937-41 president of the Asheville Music Association, now the Asheville Symphony Society. In 1950 he retired for reasons of poor health and is buried in Riverside Cemetery. At the time of his retirement a resolution in praise of his achievements, passed by his fellow physicians in the Buncombe County Medical Society, characterized him most appropriately as "an ornament to our profession."

C. Hartwell Cocke was the last of the second generation phthisiologists. His story is remarkably similar in many respects to Dr. Charles Minor some fifteen years earlier. He was born in Mississippi, the son of the president of a small college, and attended Episcopal High School where he was the honor student for each of his three years. Like Minor, he graduated from the University of Virginia, but then went to Cornell for his M.D. degree. He interned at the Presbyterian Hospital in New York City 1906-07, following which he studied in London, Paris and Vienna. Just as had Dr. Minor, Cocke trained initially in surgery and practiced briefly in Birmingham, Alabama, but when he developed tuberculosis he came to Asheville to be treated. Following recovery, he decided to specialize in tuberculosis and in association with Dr. John W. Huston started the Zephyr Hill Sanitarium. Dr. Cocke followed the footsteps of Dr. Minor in national medical circles as well as in local affairs. He became secretary of the section on tuberculosis in the A.M.A. and vice president of the American College of Chest Physicians in 1937. He was a prominent figure in the American College of Physicians, serving as chairman of the Board of Governors 1929-42 and Regent 1936-42. He was a vestryman of Asheville's Trinity Episcopal Church for 20 years and was one of the founders of Biltmore Forest Country Club. He was a leading Asheville physician until his death from a heart attack in 1944. Dr. S. L. Crowe, who came in 1926 as Dr. Cocke's associate, is still in active practice in Asheville almost 60 years later.

Appropriately, it fell to a nephew of Karl Von Ruck to be the last of the Asheville tuberculosis specialists. Edward W. Schoenheit, whose father, W. A. Schoenheit, was the business manager at Winyah and whose mother, Grace Moore Schoenheit was Mr. Von Ruck's sister, was born on the sanitarium grounds at Mt. Clare and Dortch Avenues. He first went to the University of Tennessee to study veterinary medicine but, changing careers, transferred to the University of Maryland and was a pre-medical student when his cousin, Silvio Von Ruck, died. He obtained his medical degree from Jefferson, interned at the Pennsylvania Hospital, and returned to practice at Winyah in 1921, just one year before Karl Von Ruck's death. A principal heir of the Von Ruck estate, he inherited the sanitarium, and after his marriage in 1924, he and his wife, the former Elizabeth Kimberly, lived in the Von Ruck mansion off Charlotte Street until 1937 when they built their present home in Biltmore Forest. About 1930, sensing that the tuberculosis era in Asheville was on the decline, Schoenheit closed Winyah and spent a year in Vienna studying cardiology. He returned to enjoy a long and successful career as an internist in Asheville. He was greatly respected by his colleagues, serving as president of the North Carolina Medical Society, and was the recipient of

the Distinguished Physician Award in 1976 when he retired after 53 years of practice. He died in 1980 and is buried in the Von Ruck plot at Riverside Cemetery.

Asheville's Sanitaria

In 1900 Asheville's only sanitarium, the Old Winyah, with a capacity of no more than 60 beds, had long since become inadequate to accommodate the horde of tuberculosis patients who came to the now famous resort in ever-increasing numbers. Except for those in Winyah, patients were housed in boarding houses, most of which were operated solely for the care of people with tuberculosis. In a 1901 brochure advertising Asheville, Von Ruck mentions the numerous establishments of this nature available to patients at a cost of as little as \$4-\$8 per week and ones with "better accommodations" at rates of \$10-\$15. "A few" says Von Ruck, "refuse invalids altogether," suggesting that most of the boarding houses did accept "tuberculars." The number of "boarding houses" rose from 55 in 1900 to 137 in 1910 and remained at that level for the next 20 years. These were for the most part large houses converted into small sanitarium providing room, board, and bedside nursing care. The ever-present open air sleeping porch was a necessary feature common to all. Usually the physicians arranged accommodations for their patients, which had the effect of clustering patients in particular locations, all cared for by one physician or his associates. Some physicians opened sanitarium of their own, some quite large and attractive two and three story buildings with the ubiquitous open air porches. In 1900 three nuns from Belmont Abbey converted a former school house at 40 North French Broad into "St. Joseph's Retreat," which provided 18 beds for patients with tuberculosis. In 1905 it was moved to larger quarters on Starnes Avenue and then in 1916 to its present location on Biltmore Avenue, where it became the St. Joseph's Sanitarium with 95 beds, subsequently the St. Joseph's Hospital of today.

The slopes of Sunset Mountain quickly became studded with sanitarium. By 1905 Dr. Dunn had added "Sunnyside" operated by his parents on Sunset Drive. Miss Ann O'Connell, a retired Johns Hopkins nurse, operated Edgewood Cottage in Dr. Porter's old summer home. The largest of the group, "Fairview," was run by a Mrs. Perkins, who cared for as many as five hundred patients housed in small 2- to 4-bed "shacks" (a Trudeau Sanitarium term): tiny buildings open on the sides above window level except for rolled down curtains. They were outfitted in Spartan fashion with only beds, a stove, and an enclosed bathroom. Food was prepared in a large central building and care was provided by a staff of 50 or 60 nurses and attendants. Mrs. Perkins was afforded great respect because she cared for patients regardless of their financial status and admitted all referrals, many of whom were unable to pay. Other such installations built in this favorite area were Oteora Cot-

tage, Sunset Heights, and Royce Cottage, the latter of which was still in operation in the 1950s.

Because of the desire for open air (as well as the attitude of the townspeople), the sanitarium were located at edges of town, but as the city grew, many came to lie within the corporate limits; for instance, the new Winyah on Spears Avenue, the Wellington and the Elmhurst on Edgewood Road, and the Oakland on Victoria Road — all originally located beyond the city limits. With the advent of the automobile, additional facilities were built further out, such as Ambler Heights on the Swannanoa Road, Hillcroft and Abernathy Cottage south of Biltmore Village, Violet Hill and Zephyr Hill in West Asheville, and others as far away as Fairview and Black Mountain.

Asheville flourished in the good times of the 1920s, but Dr. Schoenheit's estimate of the future of private sanitarium proved to be accurate. In 1930 the business community, prompted by the economic reverses of the Great Depression, belatedly recognized the value of the tuberculosis trade. *Health and Happiness in the Land of the Sky*, a promotional magazine published in 1930 by the local Chamber of Commerce with the approval of the Buncombe County Medical Society, boasted twenty tuberculosis specialists and twenty-five sanitarium providing 900 beds for patients. The sanitarium rates in the depressed market of that day ranged from \$15 to \$35 a week while the more luxurious Winyah and Ambler Heights commanded \$50 a week (physician's fees not included).

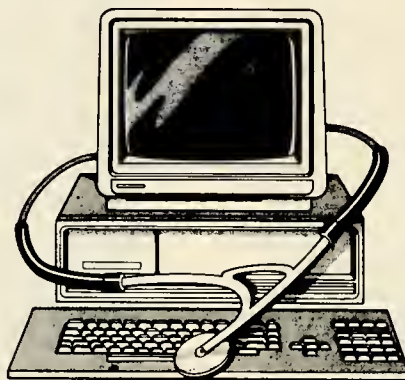
Times were changing rapidly, however. State sanitarium manned by fulltime professional staffs had sprung up throughout the nation, new and improved methods revolutionized the treatment of tuberculosis, and the days of the private sanitarium were over. In nearby Oteen, a thousand-bed modern sanitarium, the largest such facility in the nation, offered superior care at no cost for war veterans. In 1937 the state opened a branch of the North Carolina system in Swannanoa, later named the Western North Carolina Sanitarium, offering excellent care at a rate of 50¢ to \$1.50 per day including medical fees.

One by one the Asheville sanitarium closed. In 1937 the Sisters of Mercy enclosed the sleeping porches at St. Joseph's and converted it into a general hospital. A few remaining cottage-sized facilities remained as late as the 1950s. All were gone by 1960. By that time, with the introduction of antibiotic therapy, sanitarium care was rarely needed. In 1959, with fewer than 60 patients with tuberculosis, Oteen itself was converted to a center for pulmonary and cardiac surgery, and by 1979 the Western North Carolina Sanitarium, no longer needed for tuberculosis, became a drug detoxification unit and a home for the mentally retarded. By the 1940s the only physicians specializing in tuberculosis were the full time staff of the state-supported sanitarium. There were none in Asheville. The tuberculosis era had come to an end.

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Serum Digoxin Levels and Renal Failure

Daniel L. Dolan, M.D. and C. Edwin Webb, Pharm.D.

- The authors measure and report serum digoxin levels in patients with renal impairment and compare techniques for measuring digoxin levels.

THE commonly employed methods for quantification of serum digoxin concentration include radioimmunoassay, enzyme immunoassay and fluorescent polarization immunoassay. Measurement of the serum digoxin concentration is often helpful in the management of certain patients, is particularly important in young or elderly patients and in any patient with significant renal impairment, since these groups have been identified as being at risk for digoxin toxicity.^{1,2}

Recently, reports have appeared demonstrating elevations of the serum digoxin concentration in patients with renal impairment who were not receiving digoxin.³⁻⁵ The authors have suggested the possibility of a cross-reactivity of the assays with some unidentified digoxin-like substance, and have reported apparent variations in this effect from one assay method to another.

These reports prompted us to examine data on patients in our community having chronic renal failure who were not taking digoxin. In addition, since the two major hospitals in Asheville employ different analytic techniques for digoxin measurement, we were able to study potential differences in these two methods.

Blood was obtained from 26 patients in chronic renal failure before and after routine outpatient hemodialysis. Simultaneous serum creatinine determinations were made (table 1). No serum creatinine value in any specimen fell below 3.3 mg/dl. Each specimen was divided, then analyzed by both the Fluorescence Polarization TDX (Method A) and the Gammacoat 1125 Digoxin Radioimmunoassay (Method B). Patient 25 was taking digoxin and served as a control. The remainder received no digoxin, as determined by analysis of chart records and medication history information.

Under routine clinical conditions, the two hospital laboratories report quantitative values only when in excess of 0.5 ng/ml. Quantification below that level is possible with Method A using simple dilution techniques, and values are reported here for interest. Values described as "low" in Method A represent values ≤ 0.01 ng/ml. Method B employed a 0.5 ng/ml standard; hence numerical values below that were reported as zero. All serum samples were immediately frozen upon collection and all analyses were performed within 72 hours. No patients were receiving

concurrent spironolactone, furosemide or steroid therapy at the time of this study.

Results of the analysis are listed in table 1. Both methods correctly identified the patient on digoxin. With this exception, no value of any specimen exceeded a digoxin concentration of 0.23 ng/ml.

Graves et al reported on serum digoxin concentrations in aliquots of sera from 54 patients with serum creatinine values in excess of 2 mg/dl and found considerable discrepancy among six radioimmunoassay methods.⁴ In this study most values fell below the usual clinically reportable level of 0.5 ng/ml. However, the highest measured concentration was 1.0 ng/ml by radioimmunoassay and included

Table 1

Measurements of serum creatinine and digoxin concentrations in 26 patients with chronic renal failure.

Patient	Serum Creatinine Before Dialysis/ After Dialysis (mg/dl)	Serum Digoxin Method A Before Dialysis/ After Dialysis (ng/ml)	Serum Digoxin Method B Before Dialysis/ After Dialysis (ng/ml)
1	9.0/4.2	0.12/0.09	0.0/0.0
2	10.1/4.5	low/0.23	0.0/0.0
3	18.5/14.4	low/0.11	0.0/0.0
4	16.5/9.2	0.03/0.5	0.0/0.0
5	11.3/6.5	low/0.17	0.0/0.0
6	11.2/6.8	0.04/0.19	0.0/0.0
7	13.0/6.1	low/low	0.0/0.0
8	12.0/4.4	0.21/0.04	0.0/0.0
9	14.9/9.0	0.07/0.15	0.0/0.0
10	11.2/6.3	0.13/0.05	0.0/0.0
11	9.8/7.7	0.03/low	0.0/0.0
12	20.0/10.8	0.17/low	0.0/0.0
13	10.6/6.3	low/0.21	0.0/0.0
14	13.6/5.5	0.01/0.16	0.0/0.0
15	7.9/5.4	low/low	0.0/0.0
16	13.2/5.7	low/0.05	0.0/0.0
17	8.6/6.0	low/low	0.0/0.0
18	17.5/9.2	low/low	0.0/0.0
19	15.5/7.4	low/low	0.0/0.0
20	16.3/9.6	low/low	0.0/0.0
21	12.5/5.9	low/low	0.0/0.0
22	7.7/4.3	0.13/low	0.0/0.0
23	9.1/3.3	low/low	0.0/0.0
24	9.4/6.0	0.09/low	0.0/0.0
25*	3.7/—	0.91/—	0.79/—
26	9.7/4.5	0.03/0.14	0.0/0.0

*Patient was taking digoxin.

From the Departments of Internal Medicine and Pharmacy, Mountain AHEC, Asheville 28801 and The Schools of Medicine and Pharmacy, The University of North Carolina, Chapel Hill 27514.



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values of 0.6 and 0.7 ng/ml in other sera by both this method and EMIT-CAD, an enzyme immunoassay. One level of 0.58 ng/ml, along with a spread of levels between 0 and 0.48 ng/ml was seen with the Gammacoat assay. Use of the Raimen Digoxin RIA Kit resulted in levels between 0 and 0.52 ng/ml. The Digoxin Radioimmunoassay Kit gave levels below 0.05 ng/ml except for one value of 0.32 ng/ml. Levels measured by the Immunophase techniques also clustered below 0.05 ng/ml except for one value of 0.46 ng/ml.

Previous reports of spurious values have raised concerns regarding the interpretation of serum digoxin concentrations in patients with renal failure. While the magnitude of these levels is frequently quite small and clinically insignificant, the potential addition of these values to true digoxin content in a patient taking digoxin could lead to a misinterpretation of the value with a corresponding decision to under-dose. The relatively few high spurious levels, when present, could indeed lead to clinical confusion, and may perhaps explain the rise in serum digoxin concentration over an 11-day period reported by Gault et al following a

total dose of 1 mg of digoxin administered intravenously over 3 days in a patient with acute renal failure.⁶ Similar types of cross-reactivity have been reported in pregnant patients,^{7,8} and neonates^{9,10} not taking digoxin. The differences between commercial kits may be related to the specific antibody employed and its tendency toward cross-reactivity.

Our data in a series of 26 patients did not contain any spurious serum digoxin concentrations above 0.23 ng/ml by either method, a value considerably below what would be routinely reported. Yatschoff et al reported values by the Abbott TDX and Kallestad methods to be less than 0.28 ng/ml in 25 uremic patients, although a few false positives were seen in 30 neonates.⁹ Similar results in neonates have been reported with the Gammacoat method.¹⁰ We chose not to include neonates in our evaluation.

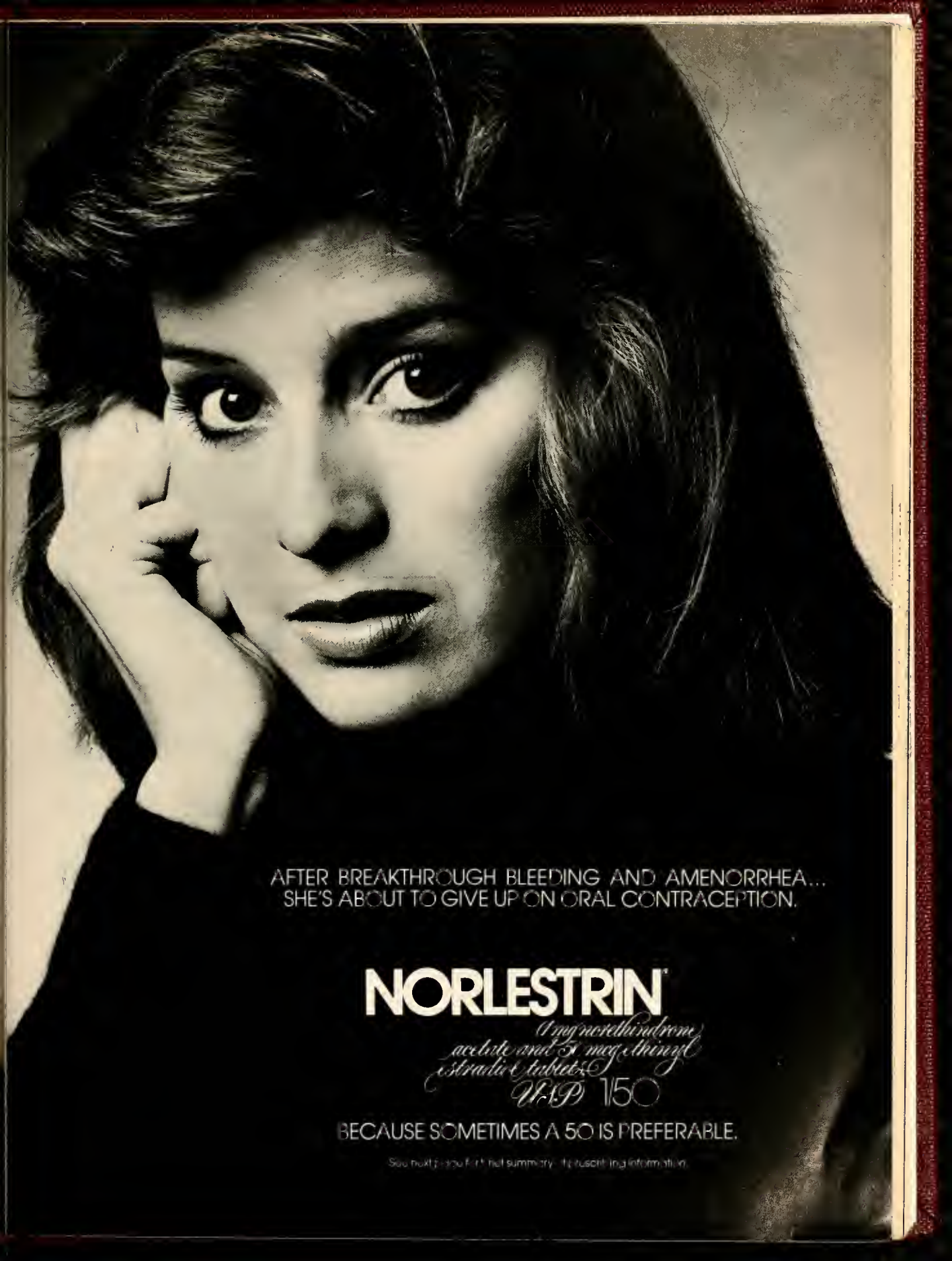
We conclude that the risk of false positive serum digoxin levels by the Abbott TDX and Clinical Assays Gammacoat methods was acceptably small in our population with chronic renal failure. While the possibility exists that the contribution of a spurious value may occasionally lead to pharmacokinetic misinterpretation and possible inadequate dosing of digoxin in a patient with renal failure, clinical and hemodynamic evaluation of the patient should provide the additional data necessary to make appropriate therapeutic decisions.

Acknowledgment

We wish to thank H. Denniston Crews, M.D., Asheville Kidney Center; John McCleod, M.D., Memorial Mission Hospital; and Henry Garfield, Ph.D., St. Joseph's Hospital for their technical assistance in this study.

References

1. Smith TW. Digitalis toxicity: epidemiology and clinical use of serum concentration measurements. *Am J Med* 1975;58:470-6.
2. Keller F, Molzahn M, Ingerowski R. Digoxin dosage in renal insufficiency: impracticality of basing it on the creatinine clearance, body weight, and volume of distribution. *Eur J Clin Pharmacol* 1980;18:433-41.
3. Craver JL, Valdes R. Anomalous serum digoxin concentrations in uremia. *Ann Intern Med* 1983;98:483-4.
4. Graves SW, Brown B, Valdes R. An endogenous digoxin-like substance in patients with renal impairment. *Ann Intern Med* 1983;99:604-8.
5. Klingmuller D, Weiler E, Oramer HH. Digoxin-like natriuretic activity in the urine of salt-loaded healthy subjects. *Klin Wochenschr* 1982;60:1249-53.
6. Gault M, Galloway B, Fine A, Vasdev S. Rising serum digoxin without further dosage in acute renal failure. *Nephron* 1984;37:190-4.
7. Orst RH, Plomp TA, Tennison AJ, Meas RA. A comparative study of the homogeneous enzyme immunoassay (EMIT) and two radioimmunoassays (RIA) for digoxin. *Clin Chem Acta* 1977;79:557-67.
8. Boinik ABTJ, Kroeswijk HH, Willebrauds AF, Maas AHJ. Some factors affecting a commercial kit for radioimmunoassay of digoxin using tritiated digoxin. *J Clin Chem* 1977;15:261-6.
9. Yatschoff RW, Desjardis PRE, Dalton JG. Digoxin-like immunoreactivity in the serum of neonates and uremic patients as measured by the Abbott TDX (letter). *Clin Chem* 1984;30:588.
10. Valdes R, Graves SW, Brown B, Landt M. Endogenous substance in newborn infants causing false positive digoxin measurements. *J Peds* 1983;102:947-50.



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Brief Summary of Prescribing Information

NORLESTRIN® (norethindrone acetate and ethinyl estradiol tablets, USP)

See section under **Special Notes on Administration and HOW SUPPLIED**. Before prescribing, please see full prescribing information. A Brief Summary follows.

DESCRIPTION

Norlestrin® Products are progestogen-estrogen combinations.

INDICATIONS AND USAGE

Norlestrin® Products are indicated for the prevention of pregnancy in women who elect to use oral contraceptives as a method of contraception.

In clinical trials with Norlestrin 1/50 involving 25,983 therapy cycles, there was a pregnancy rate of 0.05 per 100 woman-years, in clinical trials with Norlestrin 2/50 involving 96,388 cycles, there was a pregnancy rate of 0.22 per 100 woman-years.

Dose-Related Risk of Thromboembolism from Oral Contraceptives. Studies have shown a positive association between the dose of estrogens in oral contraceptives and the risk of thromboembolism. It is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The oral contraceptive prescribed for any given patient should be that product which contains the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance.

CONTRAINDICATIONS

1. Thrombophlebitis or thromboembolic disorders.
2. A past history of deep-vein thrombophlebitis or thromboembolic disorders.
3. Cerebral vascular or coronary artery disease.
4. Known or suspected carcinoma of the breast.
5. Known or suspected estrogen-dependent neoplasia.
6. Undiagnosed abnormal genital bleeding.
7. Known or suspected pregnancy (See WARNING No. 5).
8. Benign or malignant liver tumor which developed during the use of oral contraceptives or other estrogen-containing products.

WARNINGS

Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. The risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.

The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. Thromboembolic Disorders and Other Vascular Problems. An increased risk of thromboembolic and thrombotic disease associated with the use of oral contraceptives is well established. Studies have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic.

Cerebrovascular Disorders: In a collaborative study in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than nonusers, and the risk of thrombotic stroke was 4.0 to 5.5 times greater.

Myocardial Infarction: An increased risk of myocardial infarction associated with oral contraceptives has been reported. However, the amount of estrogen is not the sole factor involved. These studies found that the greater the number of underlying risk factors (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preclampsia toxemia) for coronary artery disease, the higher the risk of developing myocardial infarction, regardless of whether the patient was an oral contraceptive user or not. Oral contraceptives, however, were found to be a clear additional risk factor.

It has been estimated that users who do not smoke (smoking is considered a major predisposing condition to myocardial infarction) are about twice as likely to have a fatal myocardial infarction as nonusers who do not smoke. Oral contraceptive users who are smokers have about a fivefold increased risk of fatal infarction compared to users who do not smoke, but about a tenfold to twelvefold increased risk compared to nonusers who do not smoke. The amount of smoking is also an important factor.

Risk of Dose: In an analysis of data, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in oral contraceptives. However, the amount of estrogen is not the sole factor involved.

Persistence of Risk: Two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of oral contraceptive use for cerebrovascular disease and 9 years for myocardial infarction. In addition, a prospective study suggested the persistence of risk for subarachnoid hemorrhage.

Estimate of Excess Mortality from Circulatory Diseases: The risk of diseases of the circulatory system is concentrated in older women, in those with a long duration of use, and in cigarette smokers.

A study of available data from a variety of sources concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of oral contraceptives in women over 40 who smoke.

The risk of thromboembolic and thrombotic diseases associated with oral contraceptives increases with age after approximately age 30 and, for myocardial infarction, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preclampsia toxemia, and especially by cigarette smoking.

The physician should be alert to the earliest manifestations of thromboembolic and thrombotic disorders. Should any occur or be suspected, the drug should be discontinued immediately.

A fourfold to sixfold increased risk of postsurgical thromboembolic complications has been reported in users. If feasible, oral contraceptives should be discontinued at least four weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization.

2. Ocular Lesions. Neuro-ocular lesions, such as optic neuritis or retinal thrombosis, have been associated with the use of oral contraceptives. Discontinue the oral contraceptive if there is unexplained sudden or gradual, partial, or complete loss of vision, onset of proptosis or diplopia, papilledema, or retinal vascular lesions.

3. Carcinoma. Long-term continuous administration of estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver.

In humans, an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women has been reported. However, there is no evidence suggesting increased risk of endometrial cancer in users of conventional combination or progestogen-only oral contraceptives.

Studies found no evidence of increase in breast cancer in women taking oral contraceptives, however, an excess risk in users with documented benign breast disease was reported.

There is no confirmed evidence of an increased risk of cancer associated with oral contraceptives. Close clinical surveillance of users is, nevertheless, essential. In cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer, or who have breast nodules, fibrocystic disease, or abnormal mammograms, should be monitored with particular care.

4. Hepatic Tumors. Benign hepatic adenomas have been found to be associated with oral contraceptives. Because hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage, they should be considered in women presenting abdominal pain and tenderness, abdominal mass, or shock.

A few cases of hepatocellular carcinoma have been reported in women taking oral contraceptives. The relationship of these drugs to this type of malignancy is not known at this time.

5. Usage in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring. During early pregnancy female sex hormones may seriously damage the offspring.

An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of oral contraceptives in pregnancy.

There is some evidence that triploidy and possible other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing oral contraceptives.

Pregnancy should be ruled out before continuing an oral contraceptive in any patient who has missed two consecutive menstrual periods. If the patient has not adhered to the sched-

ule, the possibility of pregnancy should be considered at the time of the first missed period, and oral contraceptives should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuing the pregnancy should be discussed.

Women who discontinue oral contraceptives with the intent of becoming pregnant should use an alternate form of contraception for a period of time before attempting to conceive. Administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy.

6. Gallbladder Disease. Studies report an increased risk of surgically confirmed gallbladder disease in users of oral contraceptives.

Carbohydrate and Lipid Metabolic Effects. Because decreased glucose tolerance has been observed in a significant percentage of patients, prediabetic and diabetic patients should be carefully observed while receiving oral contraceptives.

An increase in triglycerides and total phospholipids has been observed.

8. Elevated Blood Pressure. An increase in blood pressure has been reported in patients receiving oral contraceptives. The prevalence in users increases with longer exposure. Age is also strongly correlated with development of hypertension. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure.

9. Headache. Onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of oral contraceptives.

10. Bleeding Irregularities. Breakthrough bleeding, spotting, and amenorrhea are frequent reasons for patients discontinuing oral contraceptives. In breakthrough bleeding nonfunctional causes should be borne in mind. In undiagnosed abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy.

Women with a past history of oligomenorrhea or secondary amenorrhea, or young women without regular cycles should be advised that they may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of oral contraceptives.

11. Ectopic Pregnancy. Ectopic as well as intrauterine pregnancy may occur in contraceptive failures.

Breast-Feeding. Oral contraceptives may interfere with lactation. Furthermore, a small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs.

PRECAUTIONS

1. A complete medical and family history should be taken prior to the initiation of oral contraceptives. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen, and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, oral contraceptives should not be prescribed for longer than one year without another examination.

2. Preexisting uterine leiomyomata may increase in size.

3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree.

4. Oral contraceptives may cause fluid retention and should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated.

5. Patients with a past history of jaundice during pregnancy have an increased risk of relapse when taking oral contraceptives. If jaundice develops, the medication should be discontinued.

6. Steroid hormones may be poorly metabolized and should be administered with caution in patients with impaired liver function.

7. Users may have disturbances in normal tryptophan metabolism, which may result in a relative pyridoxine deficiency.

8. Serum folate levels may be depressed.

9. The pathologist should be advised of oral contraceptive therapy when relevant specimens are submitted.

10. Certain endocrine and liver function tests and blood components may be affected:

(a) Increased sulfobromophthalen retention (b) Increased prothrombin and factors VII, VIII, IX, and X, decreased antithrombin III, increased norepinephrine-induced platelet aggregability (c) Increased thyroid-binding globulin (TBG) leading to increased circulating total thyroid hormone (d) Decreased pregnanediol excretion (e) Reduced response to metyrapone test.

Drug Interactions: Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin.

ADVERSE REACTIONS

An increased risk of the following serious adverse reactions has been associated with oral contraceptives: thrombophlebitis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, cerebral hemorrhage, hypertension, gallbladder disease, benign hepaticomas, and genital anomalies.

There is evidence of an association between the following conditions and the use of oral contraceptives, although additional confirmatory studies are needed: mesenteric thrombosis, neuro-ocular lesions, eg, retinal thrombosis and optic neuritis.

The following adverse reactions have been reported in patients receiving oral contraceptives and are believed to be drug related: nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10% or less of patients during the first cycle of use; reactions, as a general rule, are seen much less frequently or only occasionally.

gastrointestinal symptoms, breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea, amenorrhea during and after treatment, temporary infertility after discontinuance of treatment, edema, chloasma or melasma, breast changes, change in weight, change in cervical erosion and cervical secretion, possible diminution in lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, change in corneal curvature, intolerance to contact lenses.

The following adverse reactions have been reported and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption, vaginitis, porphyria.

Special Notes on Administration

Menstruation usually begins two or three days, but may begin as late as the fourth or fifth day after discontinuation of medication.

After several months on treatment, bleeding may be reduced to a point of virtual absence, reduced flow may be a result of medication and not indicative of pregnancy.

HOW SUPPLIED

Norlestrin (21) 1/50 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills.

Norlestrin (28) 2/50 is available in compacts each containing 21 tablets. Each tablet contains 2 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills.

Norlestrin (28) 1/50 is available in compacts each containing 21 yellow tablets and 7 white inert tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each white tablet contains 75 mcg of ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

Norlestrin (28) 2/50 is available in compacts each containing 21 pink tablets and 7 brown tablets. Each pink tablet contains 2 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each brown tablet contains 75 mcg of ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

Norlestrin (28) 1/50 is available in compacts each containing 21 yellow tablets and 7 white inert tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills.

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North Carolina Medical Journal

Features for Patients

September 1985

Accidental *Veratrum Viride* Poisoning in Three "Ramp" Foragers

Daniel Crummett, M.D., Deborah Bronstein, M.D., and
Zebulon Weaver, III, M.D.

"Ramps (*Allium tricoccum*) have become an increasingly popular seasonal delicacy in Southern Appalachia. With their distinctive onion/garlic flavor and odor it would seem difficult to mistake other plants for ramps. Unfortunately, however, other plant species are morphologically similar and might confuse the inexperienced ramp forager. In this report we describe three young adults who became seriously ill after ingesting what they thought were ramps.

Case Report

One man, D.G., and two women, S.R. and K.G., ages 30, 28 and 28 respectively, after reading a newspaper account of a local ramp festival, proceeded to the Blue Ridge Parkway to forage ramps. They had not previously eaten or identified the plant. Encouraged by a confident bystander the threesome picked approximately one dozen plants which they believed were ramps. Bulbs of the plants were removed and added to an egg salad which all three ate. Several hours after eating they presented to the emergency room with weakness, nausea, hypotension and bradycardia.

K.G. developed crampy abdominal pain with nausea approximately thirty minutes after ingestion and began self-induced vomiting. She presented to the emergency room with the following vital signs: pulse 58, respiratory rate 20 per minute, and blood pressure 94/60. The rest of the physical examination was unremarkable except for pronounced pallor. EKG was normal except for sinus bradycardia. Electrolytes were as follows: sodium 130, potassium 3.9, chloride 101, CO₂ 30, anion gap -1. Blood pressure dropped to 80/52 and the heart rate to 55 after several hours in the emergency room. After four hours of observation the patient was asymptomatic and the blood pressure was 90/60; therefore, she was discharged home.

S.R. presented with the following vital signs: temperature 96.5, pulse 60, respirations 18 and blood pressure 80/50. Remarkable physical findings included pronounced pallor and a slight diffuse abdominal tenderness. EKG revealed sinus bradycardia with a rate of 51 and first degree heart block with a P-R interval of .31 seconds. Continuous monitoring revealed brief episodes of second degree atrioventricular heart

block (Mobitz I). Electrolytes were as follows: sodium 132, potassium 4.4, chloride 108, CO₂ 24, anion gap 0. Complete blood count and urinalysis were unremarkable. One liter of normal saline was infused over one hour and 10 ounces of magnesium citrate were given. Approximately four hours after admission the patient's P-R interval was .20 seconds, pulse 74 and blood pressure 90/50. She was admitted for cardiac monitoring and had an uneventful 24 hour course and was discharged. Electrolytes and anion gap on discharge were normal. The P-R interval returned to .17 with a heart rate of 74 and blood pressure of 100/62.

D.G. presented with the following vital signs: temperature 98.6, pulse 50, respirations 20, blood pressure 70/32. He was initially alert, but slow to respond. Remarkable physical findings included pronounced pallor and a grade II/IV systolic murmur (which was later shown to be secondary to bicuspid aortic valve by echocardiography). Twelve lead EKG revealed sinus bradycardia with a rate of 48 and peaked T waves in the anterolateral leads (13 mm height). Electrolytes were sodium 138, potassium 3.9, chloride 108, CO₂ 27.8, an-

ion gap 2. Complete blood count and urinalysis were unremarkable. Upon arrival at the emergency room one liter of lactated Ringer's solution was infused over twenty minutes and IM Compazine was given to control vomiting. Approximately one hour after arrival the patient's blood pressure became 60/20 prompting a continuous I.V. dopamine infusion at 2 mg/kg/min which quickly raised the blood pressure to 90/60. The patient's blood pressure remained stable after the discontinuation of dopamine. The heart rate, however, dropped to 46 on several occasions. At discharge the patient's electrolytes and anion gap were normal and the peaked T waves had resolved and were 5 mm in height.

Discussion

Several of the plants in question were retrieved in the emergency room. Although we were initially unable to identify the plants we were able to determine that they were not ramps. The possibility of digitalis toxicity from plant ingestion was strongly considered; however, this was questioned because the degree of hypotension seen would be unusual in digitalis toxicity. We felt that the degree of bradycardia could not explain the degree of hypotension. Also, Foxglove and Lily of the Valley

(known digitalis-containing plants) were eliminated as possibilities because of morphological dissimilarities from the plants in question. It wasn't until several days later that we were able to correctly identify the plants as *Veratrum viride* (or more commonly False Hellebore).

Veratrum viride is a perennial herb which is widely distributed in wet or swampy ground throughout the northern hemisphere. The pharmacology of *Veratrum* is complex and contained within the plant are many toxic alkaloids. Glycosidic and ester derivatives of alkaline alkaloids have been identified, the latter of which are the principal hypotensive agents.¹

Veratrum alkaloids produce hypotension and a concomitant bradycardia. Hypotension is independent of a change in heart rate. Reflex phenomena whose afferent vagal impulses are thought to arise in the carotid sinuses, left ventricle and lungs are thought to result in hypotension secondary to vasodilation and bradycardia. Atropine will not completely abolish hypotension, but will prevent bradycardia; therefore, it appears that the vagi are the efferent arms of the reflex for the heart, but the efferent mechanism for hypotension is more complex.

Veratrum alkaloids also produce a direct depressant effect on respiration

and a direct bronchoconstrictor effect. Vomiting is thought to result from a reflex involving the nodose ganglion.

After ingestion, *Veratrum* alkaloids usually act within two hours and effects may persist for four to six hours. They are degraded in the liver and excreted in the feces.^{1,2}

Veratrum species have been used for medicinal purposes for hundreds of years. They were used in sorcery during the Middle Ages and in folk medicine as counter irritants in neuralgia, as cardiac tonics, as emetics and to treat fever. *Veratrum viride* was also employed as an American Indian potion to test the stamina of young Indian braves.^{3,4}

In the early 1950s *Veratrum* alkaloids were among the first antihypertensive agents used in the United States. They have been used in the treatment of essential, renal, and malignant hypertension as well as in pregnancy-induced hypertension syndromes. With newer antihypertensive agents the *Veratrum* alkaloids fell into disfavor because of the narrow range between therapeutic and toxic doses.³

The cases presented certainly typify the effects of *Veratrum* alkaloid poisoning. Of note, however, are the peaked T waves of D.G. which resolved after an increase in heart rate and blood pressure. Also of interest are the initial decreased anion gaps



of all three patients. The reason for this is unclear but may represent laboratory error.

Veratrum viride and *Allium tricoccum* (or "ramps") are both found in southern Appalachia and have almost identical distribution patterns; however, there should be little difficulty differentiating between the two. The most obvious difference is the very strong odor of leeks which "ramps" possess, but which *Veratrum viride* lacks.

Morphologically, the two plants are dissimilar when mature; however, there are similarities during early spring when "ramps" are in season. *Veratrum viride* has deeply veined leaves originating from a stem. The mature plant is very leafy. The length to width ratio of leaves from a mature

plant is 2.5/1 which is less than the length to width ratio of a young plant. The bulb of *Veratrum viride* is slender.

Allium tricoccum has only two leaves, which are smooth. Length to width ratio of leaves is 4-5/1. There is no stem and the bulb has a slightly fibrous coat.

Conclusion and Summary

As with all foraged foods, ramps must be carefully identified, preferably by an experienced person, prior to ingestion. Identification will be aided by the strong odor of leeks. Mistaken ingestion of *Veratrum viride* can have serious complications including first and second degree atrioventricular block, significant hypotension, respiratory depression

and even death. With "ramps" gaining increasing popularity, western North Carolina physicians should be suspicious of accidental *Veratrum viride* poisoning in patients appearing toxic after the ingestion of "ramps."

We are indebted to Dr. Evans Whitaker and Dr. J. Lowell Orbison for their help in identifying *Veratrum viride*.

References

1. American Hospital Formulary Service, 1983 American Society of Hospital Pharmacists, Hypotensive Agents 24 08, The Veratrum Alkaloids
2. Goodman LS, Gilman A. The pharmacological basis of therapeutics. New York: Macmillan Publishing Company, 1975
3. Kreig MB. Green medicine. Chicago: Rand McNally and Company, 1964
4. Pierce RV. The people's common sense medical advisor. Buffalo: World's Dispensary Printing Office and Bindery, 1882
5. Radford AE, Ahles HE, Bell RC. Manual of the vascular flora of the Carolinas. Chapel Hill: The University of North Carolina Press, 1968

Removing a Tick

Daniel L. Dolan, M.D. and John J. McKinsey, M.D.

Many methods of removing an embedded tick have been devised. Most have proved fallible. Such procedures as burning the tick's posterior with a recently lighted match head or cigarette so that the tick would voluntarily remove himself, painting the tick with noxious and assumed painful materials such as nail polish, etc., have met with only limited success. Quite often once these approaches fail, the tick is pulled off forcibly, occasionally with dislodgement of the head which remains in the wound. The following method has been reliable the majority of the time:

1. Squeeze 2% lidocaine jelly (available at most drug stores; 5% lidocaine ointment is faster, but requires a prescription) out of the tube so as to immerse the embedded tick.
2. Wait approximately 10 minutes.
3. Remove the tick with blunt forceps.

The mechanism employed by the tick to hold the head inside the skin seems to become anesthetized and flail. At this point the tick with its head may be easily removed.

In the Piedmont and western sections of North Carolina, the appearance of fever or any febrile illness

3-12 days following a tick bite should be promptly evaluated by a physician. If no clear-cut cause is found, empiric tetracycline therapy should be strongly considered since the diagnostic rash of Rocky Mountain Spotted Fever occasionally appears dangerously late in its course.

Lidocaine sprayed into the external auditory canal has been found to cause a cockroach to exit rapidly. Will wonders never cease!¹

Reference

1. O'Toole K et al. Removing cockroaches from the auditory canal: controlled trial. N Engl J Med 1985; 312:1197.



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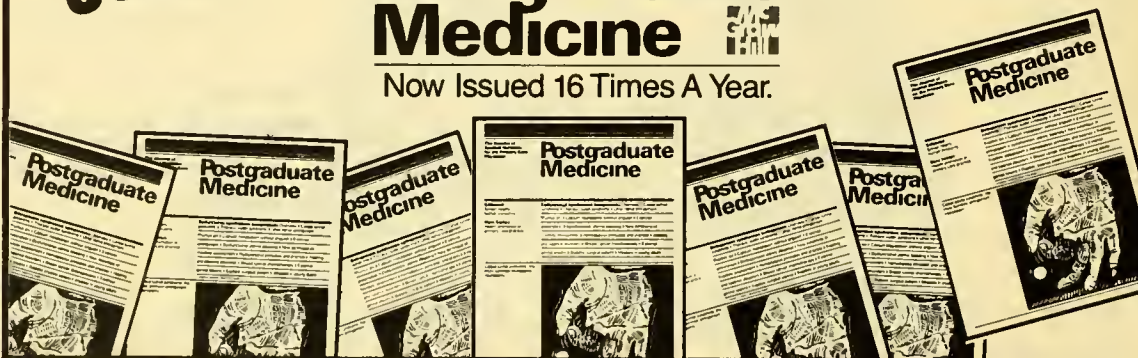
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Sebaceous Gland Carcinoma of the Eyelid: Complete Response to Sequential Combination Chemotherapy

Barton R. Paschal, M.D. and Carter S. Bagley, M.D.

• *This is the first reported use of chemotherapy in sebaceous gland carcinoma of the eyelid.*

SEBACEOUS gland carcinoma (SGC) is a rare neoplasm occurring most often in older adults.¹ It is unfortunate that the vast majority of these tumors arise in the eyelid, caruncle or orbit because it is precisely when arising from these sites that SGC displays its most aggressive clinical behavior.^{2, 3} The sebaceous gland most frequently involved is the eyelid gland of Meibom (Meibomian gland).¹ Wide excision of SGC of the eyelid is usually curative, but tumor-related mortality does occur.^{2, 4} Radiation therapy appears to have a palliative role in the management of patients with unresectable SGC.⁵ Heretofore, there have been no published accounts regarding the use of chemotherapy in this disease. Our report concerns a middle-aged man with locally advanced SGC of the eyelid who attained a complete response with sequential combination chemotherapy.

Case Report

In April 1979, a 48-year-old man was examined by an ophthalmologist for treatment of a small lesion on the lower left eyelid. When the lesion failed to respond to conservative measures, it was curetted. The nodule promptly recurred and a course of topical glucocorticoids was administered without success. In October 1979, the lesion was biopsied yielding a diagnosis of SGC.

The patient underwent two consecutive wide local excisions between October 1979 and June 1980. Subsequently, a discrepancy in the height of the globes was detected. In September 1981, a head CT scan revealed a mass along the inferior and medial wall of the left orbit. The next month, a left orbital exenteration with resection of the inferior and medial wall of the orbit and the left ethmoid sinus was performed.

In spite of these efforts, the patient suffered another recurrence 17 months later. The lesser and greater left sphenoid wing and lateral aspect of the left superior orbital fissure were resected in March 1983 to facilitate removal of a left orbital apex recurrence. At that time, the left temporalis muscle was advanced through the cranial defect and attached to the left orbital apex. The skin graft that was

placed over this muscle flap was biopsied three months later and revealed SGC.

A course of radiotherapy to the involved orbit was completed in August 1983, but another graft recurrence appeared in April 1984. Intralesional 5-fluorouracil (5-FU) diminished the size of this recurrence, but when a biopsy of the left maxillary alveolar ridge disclosed SGC in June 1984, this therapy was discontinued and a head CT scan was obtained (figure 1A).

Next, the patient received four cycles of intravenous doxorubicin 25 mg/m²/day for two days in conjunction with a 96-120 hr intravenous infusion of 5-FU 1 g/m²/24 hr at three week intervals. Head CT scans obtained before and after the fourth cycle of therapy demonstrated no interval changes; however, in comparison with the baseline CT scan, substantial tumor regression had occurred (figure 1B).

In October 1984, a limited left maxillectomy with left maxillary sinus biopsies demonstrated residual disease. Afterwards, the patient received three courses of cisplatin 80 mg/m² and vinblastine 5 mg/m² intravenously between November and December 1984. Repeat left maxillary and nasal sinus biopsies in January and February 1985 were uniformly negative for malignancy. The patient remains clinically free of recurrent disease to date.

Discussion

A recent reduction in the mortality of patients with SGC of the eyelid has been attributed to wider recognition of the clinical and pathologic characteristics of this disease.² Meibomian gland carcinoma can masquerade as a chalazion or sty; therefore, a high index of suspicion is helpful in making a prompt diagnosis. The interval between onset of symptoms and diagnosis in this case was six months, which compares favorably to the mean interval of 1-2 years reported by others.^{1, 2, 5}

When conventional therapy failed to control our patient's malignancy, a chemotherapeutic approach was entertained. To our knowledge, there are no previously published accounts regarding the use of chemotherapy in SGC. We patterned our patient's therapy after that used to treat unresectable adenoid cystic carcinoma of the salivary gland

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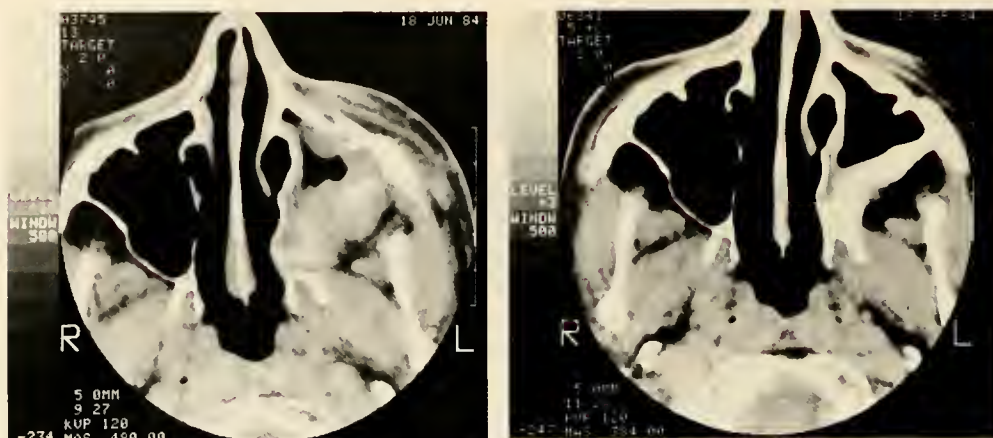


Figure 1. CT scan of the head of our patient just before he started chemotherapy (left) and after the fourth cycle of chemotherapy (right). There was considerable regression of the tumor between the two scans.

for the following reasons: 1) sebaceous neoplasms can arise from salivary glands; 2) adenoid cystic carcinoma sometimes displays sebaceous differentiation; and 3) the natural history of adenoid cystic carcinoma is similar in some respects to that of SGC.^{4, 8}

Effective chemotherapy exists for patients with adenoid cystic carcinoma. Johnson et al. reported two patients with adenoid cystic carcinoma who responded to an intra-arterial infusion of 5-FU, one of whom ultimately achieved a complete response.⁹ Doxorubicin has also shown activity in this disease.^{10, 11} Accordingly, we chose to treat our patient with intravenous 5-FU and doxorubicin. Since 5-FU is more effective in patients with head and neck cancer if administered as a continuous intravenous infusion, we opted for this schedule.¹²

When a head CT scan obtained after the fourth cycle of 5-FU and doxorubicin showed that no further improvement had occurred, we reasoned that a fifth cycle was unlikely to be helpful if cure had not already been achieved. This line of thought stemmed from the collective experience of a number of clinical investigators who have utilized relatively brief durations of therapy to treat chemosensitive tumors without compromising cure rates.^{13, 14, 15, 16} Furthermore, our patient had already received an additional course of chemotherapy after maximum tumor regression had been documented on the head CT scan obtained between the third and fourth cycle of chemotherapy. Finally, we hoped to avoid the emergence of a doubly resistant tumor clone by using a second potentially non-cross-resistant combination of drugs as soon as possible after maximum tumor regression had been achieved with the first combination (Goldie-Coldman hypothesis).¹⁷

The use of cisplatin and vinblastine (after doxorubicin and 5-FU had failed to effect a complete remission) was largely empirical. The complete response observed with

cisplatin and vinblastine, after a partial response was obtained with doxorubicin and 5-FU, implies that these two combinations are non-cross-resistant. Although it is impossible to discern which drug(s) within each combination was (were) responsible for our patient's response, it is apparent that at least one drug within each combination was effective.

This case represents the first reported experience with chemotherapy in the treatment of SGC. After two sequential courses of combination chemotherapy were administered, our patient not only responded to each combination, but also achieved a complete response. We hope this report will stimulate interest in further defining the role of chemotherapy in the treatment of this disease.

Addendum

The patient recently experienced the onset of low back pain and lower extremity weakness. A myelogram shows extradural compression of the spinal cord in the mid-thoracic spine. Cytologic examination of the spinal fluid shows malignant cells. Although re-biopsy of the temporalis muscle graft is unremarkable, there is strong clinical suspicion of a local recurrence.

Acknowledgment

We are indebted to Theresa Miller for secretarial assistance in the preparation of the manuscript.

References

- Rao NA, Hidayat AA, McLean IW, Zimmerman LE. Sebaceous carcinomas of the ocular adnexa: a clinicopathologic study of 104 cases, with 5-year follow-up data. *Hum Pathol* 1982;13:113-22
- Caner SK. Some thoughts on resistance to cancer chemotherapy. *Cancer Treat Rev* 1984; 11(Suppl A):3-7.

Complete reference list available from the NCMJ editorial office.

Cardiac Surgery in Asheville: Review of 326 Consecutive Cases During 1983

Kent W. Salisbury, M.D.

- *The results of this one-year study compare favorably with the CASS study and the population is sicker, more symptomatic and less stable.*

THIS is a retrospective survey of the pre and post operative status of 326 consecutive patients treated by Asheville Cardiology Associates during 1983.

Asheville, North Carolina is a city of approximately 60,000 people which serves as a referral center for cardiac catheterization and cardiac surgery for patients of western North Carolina. Geographically it is relatively remote.

Travel to the next closest catheterization and surgical center in the state takes 2½ hours. The medical and referral population of Asheville is approximately 400,000 individuals.

As a rural population the patient mix is predominantly blue collar with an enlarging percentage of retired citizens as the popularity of rural western North Carolina increases. The elderly Medicare population comprises approximately 35% of hospitalizations at Memorial Mission Hospital, one of two general hospitals in Asheville.

The cardiology services program has steadily expanded over the past decade, and for several years has had enough patients to meet the recommended national standards for centers for catheterization and cardiac surgery. Cardiology services are provided by the six board-certified cardiologists of Asheville Cardiology Associates and surgical services by a single cardiovascular surgery group of five board-certified cardiac surgeons.

To avoid fragmentation of services and to maintain quality and cost effectiveness, the medical staffs and administrations of St. Joseph's and Memorial Mission Hospitals have agreed to perform all invasive cardiology evaluation and cardiac surgery for the patients of both hospitals at Memorial Mission Hospital. Both hospitals provide noninvasive cardiology services.

For the purpose of this survey the following terms are defined:

1. **Elective Surgery:** Surgery performed on electively scheduled admission to hospital (145 patients — 44%).
2. **Urgent Surgery:** Surgery performed during the same hospitalization as catheterization generally because of instability, the patient being considered in a high-risk subset (eg, significant left main coronary stenosis), or because of refractory symptoms or signs (164 patients — 50%).
3. **Emergency Surgery:** Surgery performed on an emergency basis within hours of consultation because of

acute and uncontrollable decompensation (17 patients — 5%).

4. Ventricular Dysfunction:

- a. Normal: Ejection fraction (EF) >50% and no wall-motion abnormalities in RAO projection.
- b. Mild: EF >50% with minor hypokinetic segments.
- c. Moderate: EF >25-50% with significant wall-motion abnormalities.
- d. Severe: EF <25% with marked wall-motion abnormalities.

Valve Surgery

Of the 326 cardiac patients 30 required valve surgery alone, 12 urgently. There were 14 mitral procedures (replacements plus open valvulotomies), ten aortic valve replacements and six combined mitral and aortic replacements. Fifteen additional patients who had valve surgery also had coronary bypass grafts (ten were urgent or emergent). Seven patients required one coronary vein bypass graft (CABG) (five mitrals, one aortic and one aortic + mitral); four required two grafts (two mitrals and two aortics); one required three grafts (mitral); two required four grafts (two mitrals) and one required five grafts (mitral). The patients who required three or more grafts had mitral valve replacement because of mitral complications of coronary disease.

Of these 45 patients undergoing valve surgery, four required emergency surgery for acute hemodynamic compromise (one aortic and three mitral). Eighteen patients required surgery urgently because of intractable Class IV symptoms, refractory congestive heart failure or unresolved sepsis with endocarditis (ten mitrals, three aortics and five mitral + aortic). The remaining 23 patients underwent elective surgery (12 mitral, nine aortic and two mitral + aortic).

There were no deaths in the elective surgery group.

There were four early deaths in the urgent group (two mitral and two aortic). Three of these patients had significant left ventricular dysfunction and one had had recent septic shock with hypotension and severe acute mitral insufficiency from papillary muscle infarction. All four of these deaths had concomitant coronary bypass grafts.

There was no early mortality in the emergency surgical group.

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Overall early mortality for valve surgery was therefore four of 45 cases or 8.8% (2/25 mitrals, 2/13 aortics — all requiring CABG).

Nonvalve-Noncoronary Surgery

Seven patients underwent correction of atrial septal defects. One had ligation of a patent ductus arteriosus. There was no mortality in this group. One patient died who underwent attempted emergency pulmonary embolectomy for refractory shock following saddle embolization.

Coronary Bypass Surgery

Coronary artery bypass surgery was performed on 288 patients. As mentioned above, 15 had concomitant valve surgery leaving 273 with only CABG. Of the 288 patients there were 64 women (22.2%) with an average age of 64.6 years. There were 224 men (77.8%) with an average age of 58.6 years.

In the CABG group there were 13 early deaths for an operative mortality of 4.5%. However, if one excludes valve replacement combined with CABG the mortality decreases to 9/273 or 3.2%. If emergency operations are excluded, the mortality is 6/257 or 2.3%. Excluding urgent operations the mortality falls to 2/119 or 1.7%.

As in many published studies the risks of cardiac surgery in our center increase with the severity of coronary artery disease, the severity of left ventricular dysfunction, age and sex of the patient and to a certain extent with non-specific preoperative risk factors. The number of grafts placed in this patient population (mean 3.8) defines this group as one with more severe atherosclerosis than in the CASS randomized group (mean 2.7)¹ or in other published studies.

Thirty-three percent of our patients were hypertensive, 45% were current or recent smokers and 10% were diabetic. Of the 16 patients who had both diabetes and significant hypertension there were three deaths for a mortality of 18.7%. Patients with diabetes but no hypertension or smoking had no mortality. Likewise, there were no deaths in the patients with diabetes who smoked but were not hypertensive.

Seventeen percent (49 patients) had had acute myocardial infarction within four weeks of surgery. There was no mortality at surgery if there were no additional risk factors.

Old myocardial infarction was present in 36% (104 patients). Unstable angina was present in 38% (110 patients). Eighteen percent of our patients (53 patients) had both unstable angina and old infarction. There were eight early deaths in this group (15% mortality).

Forty patients (13.9%) had congestive failure; four (10%) had early mortality.

Therefore in this series the hypertensive diabetic patient and the patient with unstable angina superimposed upon prior myocardial infarction were at significant risk. Congestive heart failure also increased risk.

There were 23 (10.7%) men over age 70, 40 (18.6%) between 65 and 70 and 152 (70.7%) under 65. Of 62 women, there were 12 (19.3%) over 70, 14 (22.6%) between 65 and 70, and 36 (58.1%) under 65.

When one looks at early mortality as a function of sex and age, there were three deaths in the male group (1.4%) and six deaths in the female group (9.7%). There was one

death in a man over 70 (4.3%), one death in the 65-70 male group (2.5%) and one death in the group under 65 (1.2%). In the female group there were two early deaths among the 12 patients over 70 (14.2%), three in the 65-70 group (22.2%), and one in the group younger than 65 (2.8%).

In terms of left ventricular function the early deaths occurred once among 80 normal ventricles (1.2%), four times in 93 patients with mild LV dysfunction (4.3%), twice in 62 patients with moderate dysfunction (3.2%), and twice in 27 patients with severe dysfunction (7.4%). In 15 cases ventricular function was not listed.

Attesting to the severity of illness among the nine CABG patients who had early death was an average graft number of 4.7, refractory and continuing unstable angina in all nine patients, prior myocardial infarction in eight and an average age of 67 years.

Considering mortality in relation to urgency of surgery in our entire series (valves, CABG and combined) there were 14 early deaths (4.3%). Of these, four occurred among 17 emergency cases (24%). One was a pulmonary embolectomy, one double bypass with normal LV function and two multiple CABG with severe LV dysfunction.

Of the 164 patients requiring urgent operation, there were eight early deaths (4.9%). In this group there were two mitral valve replacements with CABG for severe mitral insufficiency secondary to coronary disease, two aortic valve replacements and CABG for significant aortic insufficiency and coronary disease and four patients with more than three CABG, all over age 60 (three women).

Finally, among the 145 patients undergoing elective surgery there were two early deaths (1.3%). Both were women (aged 69 and 71) and each had five CABG.

Preoperative NYHA functional classification of our surgical series identifies this group as a highly symptomatic and incapacitated population. With complete revascularization virtually all our CABG patients returned to Class I. Of the patients under age 65, 154 were actively employed, a high rehabilitation rate. Patients who returned to work tended to have had symptoms for a shorter period of time (days to months) than did those who did not (months to years).

Morbidity of Cardiac Surgery

Morbidity in cardiac surgery is significant even if a

Table 1
Cardiovascular and Pulmonary Morbidity

Respiratory failure	10
Atrial arrhythmias	29
Ventricular arrhythmias	10
Excessive bleeding	10
Tamponade	3
Reoperation	7
Intraaortic balloon pump	9
Myocardial infarction	6
Pericarditis	20
Infection	10
Stroke	3
Permanent pacemaker	3
Pulmonary embolus	4
Congestive failure	3
Peripheral vascular comp.	3

Table 2

Noncardiac Morbidity in 12/311 Survivors

Rash	1
Pancreatitis	2
Sternal separation	1
Paretic diaphragm	1
Renal failure	1
GI bleeding	1
Bypass graft occlusion	1
Brachial plexus injury	1
Pneumothorax	1
Tracheostomy	1
Prostatectomy	1

center has "acceptable" mortality statistics.

Among the 311 survivors in the entire series, 80 (25.7%) had either major or minor morbidity as summarized in table 1. Table 2 details miscellaneous and infection morbidity. Twenty-one patients had only one morbid event (6.6%). Thirty-two had two events (10.1%). Sixteen had three events (5.1%) and 11 had more than three (3.5%).

Not surprisingly, sepsis, renal failure and hemodynamic failure were more prevalent in the 15 patients who died. Multiple morbid events (greater than three) occurred in five of these patients (35.7%).

Discussion

This study is a retrospective review of a relatively small number of cases and as such is subject to sampling errors and bias. However, the study was initiated as an attempt to compare our surgical results with published statistics, and to survey the quality of our program in the light of other reports.

The study was also performed to compare our patient population to the widely-publicized CASS randomized study¹ and to provide information to those who would assert that "unnecessary" coronary bypass surgery is being performed.

The CASS randomized study had restrictive entry criteria which included: 1. angiographically documented 70% occlusive coronary disease of the proximal or middle portion of at least one coronary artery; 2. age less than 65 years; 3. minimal or absent angina pectoris as defined by the Canadian Cardiovascular Society (a modification of the New York Heart Association classification); 4. an ejection fraction of >35% on angiography. More importantly, the study excluded patients who had left main coronary stenosis; who were older than 65 years; who had moderate or severe angina; who had distal coronary stenosis; who had ejection fractions <35%; who had ventricular aneurysms; who were likely to require mitral valve replacement along with CABG; who had inoperable vessels, prior CABG or congestive heart failure; who had coexistent illness which would increase the likelihood of death within five years; and who for various other reasons could not participate in the study (geographic restrictions, etc.). Of course patients with normal coronary arteries and those who had not undergone angiography were also excluded.

The operative mortality in the CASS randomized patients was 1.4%. In our own series the patients undergoing

elective coronary bypass surgery carry a comparable mortality of 1.7%. Our practice has always been to medically treat the patient with characteristics similar to the CASS randomized patients. Our surgical population is therefore a more symptomatic, less stable group. Yet it still compares favorably in surgical mortality.

Generally the composition of this series compares favorably with large surgical series in preoperative characteristics such as age, sex, smoking, diabetes, prior myocardial infarction, symptoms and coronary anatomy. However, there are important differences in direct comparison with any single series. For example, in the CASS registry as reported by Kennedy et al.,² urgent or emergency surgery comprised 19.4% of the study population. In our own series these groups contained 181 patients or 55.5% of our series. Our definition of urgent or emergent is identical to CASS. The community hospital may be exposed to a sicker population of patients who cannot be transported to major referral centers.

The overall mortality in our surgical series of 326 patients is 4.25% and the series is weighted toward the unstable and critically ill patient. If one compares urgent and emergency CABG with the CASS urgent and emergency cases, our mortality of 7/176 or 3.9% is identical.¹ Considering the large percentage of urgent and emergent cases in the remainder of the series (48.9) our mortality experience also is "acceptable" in comparison with other similar series.³ Educational efforts to encourage earlier referral of valve and CABG patients are underway.

Of interest and concern in our study is the high mortality in the hypertensive-diabetic patients. Although each of these risks has been identified to be associated with increased operative mortality, other studies suggest no increase in operative mortality in these and that the apparent increase is in fact related to other variables.

The number of deaths in our series was small. The patients who died had other well-recognized risks than diabetes and hypertension, including old myocardial infarction, unstable angina, older age, female sex and multivessel disease necessitating placing an average of 4.7 grafts. It is difficult in this small series to implicate diabetes or hypertension *per se*. However, in looking at the historical features of diabetes, hypertension, unstable angina, old myocardial infarction and left ventricular dysfunction, it is apparent that the challenge of adequate myocardial preservation is greatest in these patients.

The bias in our surgical program has been toward complete vascularization. The higher number of average grafts in our series probably attests to this practice, as does the excellent improvement in postoperative functional capacity that we have demonstrated. It is interesting that some investigators suggest there may be a diminished need for coronary reoperation in those patients who have had "complete" revascularization at the first operation. Our center has seen relatively few candidates for reoperation thus far, but I have no data to show that this is the result of complete revascularization.

As in other published series, women in our series had a higher mortality than men for CABG. It is interesting that in the CASS registry, the increased risk in young women compared with men disappears in the elderly population.

The female patients in our series being comparable to other published subsets, it seems likely that the high mortality in women in our small series is the result of chance or of other concurrent risks such as age, ventricular dysfunction, unstable angina, etc.

Morbidity and postoperative rehabilitation are also important criteria for judging a program's quality. The recent study by Kuan et al⁴ summarized CABG morbidity in a surgical series comparable in size to our own. The incidence and type of major and minor complications in our two series were similar. Our patients required intra-aortic balloon pump insertion more frequently (nine cases compared with two cases) and additional complications of pancreatitis (two cases), brachial plexus injury (one case), pleural empyema (one case) and non-A non-B hepatitis (two cases) were noted. There seemed to be a higher incidence of respiratory distress syndrome (13 cases or 4%) in our series compared with none in the Kuan series and 1.6-1.8% in a Cleveland Clinic Series.⁵ The incidence of minor complications such as pericarditis, atrial fibrillation, cellulitis and phrenic nerve palsy were very similar in the Kuan series and in ours (3.2%). The subsets of these patients have already been discussed. In their series and ours the major morbidities of renal failure, heart failure, shock and sepsis were prevalent among the patients who died.

Finally, 82% of our CABG patients under 65 years of age returned to work following their surgical convalescence. Considering that this group is weighted toward a blue collar

population this is a larger percentage than reported by some studies, but similar to others. The shorter duration of symptoms in the group that returned to work attests to the benefit of early CABG in the significantly symptomatic patient in achieving full rehabilitation. Care in the patient's own community or region causes less social disruption and may also facilitate rehabilitation.

The Editor thought the author's summary was too long and repeated the substance of his article. The Editor's summary is: "If you live in western North Carolina and need cardiac surgery, you are well off."

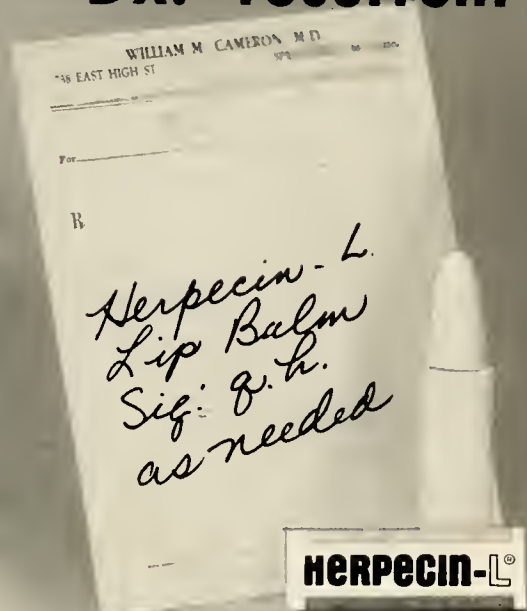
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References

1. CASS Principal Investigators and Their Associates: Coronary artery surgery study (CASS). A randomized trial of coronary artery bypass surgery. Survival data. Circulation 1983;68:939
2. Kennedy JW, Kaiser GC, Fisher LD, Maynard C, Fritz JK, Myers W, Mudd JG, Ryan TJ, Coggin J. Multivariate discriminant analysis of the clinical and angiographic predictors of operative mortality from the collaborative study in coronary artery surgery (CASS). Thorac Cardiovasc Surg 1980;80:876.
3. Sheldon WC, Loop FD. Coronary artery bypass surgery. The Cleveland Clinic experience, 1967-1982. Postgrad Med 1984;75:108.
4. Kuan P, Bernstein SB, Ellestad MH. Coronary artery bypass surgery morbidity. J Am Coll Cardiol 1984;3:1391.
5. Zapokanski A, Loop FD, Estafanous FG, Shelton WC. Myocardial revascularization at the Cleveland Clinic Foundation — 1981. Cleve Clin Q 1983;50:2.

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Cancer Immunology Is a Rapidly Developing Field

Warren H. Cole, M.D.

• *An overview of cancer immunology today.*

WE know many of the agents that can produce tumors and are beginning to understand how they alter cells to make them immortal. Tumor cells carry surface markers not present on normal cells. These tumor markers act as antigens and activate the immune system.¹ Many tumors metastasize, and we are beginning to understand how the body mobilizes its forces to resist metastasis. The role of the immunologic system in resisting bacterial and viral infections is well known to us.² This paper summarizes the evidence that this familiar immunological defense system is used to destroy wandering cancer cells. A weakened defense system, be it the result of hereditary defects, immunosuppressive drugs, poor nutrition, operative trauma, infections with virus or bacteria or changes in mood, can alter the immune system and make metastases more likely.

I will not describe the role of macrophages, the several types of lymphocytes, the immunoglobulins and other features of the immune system. This information is readily available in the recent literature.²⁻⁴ I will stress that the immune system is a dynamic and very changing system. Tumors under favorable conditions mobilize the immune system for effective action.¹ Many environmental changes depress the immune system and alter the balance in favor of the tumor.⁵⁻⁹

Each day the number of known tumor-specific antigens to which the body develops antibodies increases. The tumor cells are not inert, and they may develop substances that may result in non-specific suppression of the patient's immune system. Surgery itself may set the stage for an effective immune reaction.¹ For example, when the tumor is excised, the host's immune system may then be able to destroy a moderate number of tumor cells encountered in early metastasis.

Unfortunately, the trauma of anesthesia and surgery may in itself cause immunosuppression.^{10,11} Evidence of surgical immunosuppression was first described in 1957. In this experiment 164 rats were divided into two groups. The control group of 79 rats had inoculation of 25,000 Walker cells subcutaneously. The 85 rats in the other group had an inoculation of 25,000 Walker cells subcutaneously plus a celiotomy during which the intestines were stirred gently (simulating a resection of a tumor). The "take" in the control group was 31.6% compared with 61.1% in the experimental group.¹² We did not test human beings to see if the immune resistance was damaged by a major operation because at that date we had no lymphocyte count tests, etc., available to be used as a test for immune status.

A knowledge of the role of the immune system in de-

stroying tumor cells has cleared up the mystery of why radiation and chemotherapy can cure the original cancer but induce the development of other cancers. The agents destroying the cancer cells may alter other cells in a way that makes them cancerous and may have depressed the immune system to such a degree that the newly created cancer cells are not destroyed.

The concept that clones of malignant cells are constantly arising and that the body is constantly destroying them is an important one. It allows us to predict that whenever the immune system is impaired by a wide variety of causes, an increased incidence of cancer would be found. All series of major organ transplants that require immunosuppression have shown an increased incidence of a variety of cancers.¹³⁻¹⁷ These include transplantation of kidneys, hearts and bone marrow.

Each month more evidence is presented about the many factors that alter the immune system. In recent months, evidence that the nervous system can alter the system has been presented.¹⁸⁻²¹ We do not yet know the degree of immunosuppression that may occur in each of our lives as a function of the way we live. The need for immune protection against tumor cells must fluctuate. Many stimuli must affect the way that tumor cells migrate. What is effective immunity one day may be ineffective on another.

It is of interest that the genetic and acquired deficiency states characterized by altered immunoglobulins do not lead to the same incidence of cancer as do immunodepressive drugs. These disturbances in immunoglobulins do lead to severe and repeated infections. The physician caring for such patients should carefully examine changes in the host that permit bacteria, viruses and protozoa to flourish.

Modulation of the immune system by the brain is a rapidly developing area of knowledge. We are reproducing the preface of the book listed as reference 21 to encourage you to watch for developments in this area. Remember Eugene Stead's short summary of clinical medicine — "Never underestimate the nervous system."

Preface*

This is a time when advances in biochemistry and physiology permit us to consider, in experimental terms, the role of the central nervous system (CNS) in modulating the behavior of the immune system. The existence of such regulation should not come as a surprise, given the general role of the CNS in coordinating all systems of the organism. However, the nature, scope, and limits of the regulation

* Reprinted with permission from *Neural Modulation of Immunity*, New York, Raven Press, 1985.

are far from being well understood. What is known is the subject of this book.

Neural Modulation of Immunity is therefore addressed to those interested in the foundations of a rationale for psychological and pharmacological attempts to modulate immune responsiveness and, therefore, to a wide range of basic and clinical investigators as well as therapists and physicians who want an up-to-date survey of the empirical and conceptual state of the burgeoning field of psychoneuroimmunology.

This is only the second book devoted entirely to the new field (aside from *Mind and Immunity: Behavioral Immunology*, the annotated bibliography edited by S. E. Locke and M. Hornig-Rohan). In the three years since the publication of the first such book, *Psychoneuroimmunology*, edited by our contributor Dr. Robert Ader, several new aspects of neuroimmunomodulation have been increasingly studied and are covered only in this book—for example, the relationship of hemispheric laterality to immunity, and the innervation of the thymus gland and other lymphoid tissues.

Before commenting further on the contents of this book, we wish to distinguish its main subject from three other important aspects of the relationships between the nervous system and the immune system.

First, this book is not about autoimmune disease of the nervous system. Second, it is not about the use of antibodies to neuronal and glial antigens in order to analyze the ontogeny or circuitry of the nervous system. Third, it is not about resemblances in function or analogies between the two systems, which are often described with similar terms, e.g., memory, recognition, learning, redundancy, diversity, etc.

This book is about the mechanism and role of regulatory communication between the central nervous and immune systems. The book opens with a tutorial analysis of the essence of intrinsic immune regulation. Subsequent chapters work their way from psychological through neuroanatomical to molecular levels of analysis. Several concluding chapters deal with conceptualizing nervous-immune system relationships. Most of the chapters are reviewed by active investigators in the field of work in their laboratories. The chapters are updated versions of presentations made at a conference held in Brussels in October, 1983.

The principles of these studies are straightforward: We look for regulatory connections between the CNS and the immune system that are coupled with relevant feedback from connections between the immune and nervous systems. Feedback is required because a regulator must monitor its own effect. The connectivity we seek must be both CNS-regulated and physiologically meaningful. It can involve messenger molecules or direct innervation affecting the ontogeny and responsiveness of the immune response.

The problem becomes ambiguous, but not less important, when we substitute "mind" for "central nervous system." The reason derives from the enormous differences between our understanding of "mind" and the immune system. No one would measure the velocity of an airplane by determining elapsed time with an atomic clock and traversed distance by dead reckoning. Yet we are forced to do something like this when we study the rela-

tionship between the immune system (dependent variable) and "mind" (independent variable). The immune system is understood in sufficient detail to measure the limiting factors in responsiveness with precision, while "mind" is a collection of subjective and objective events and processes: i.e., emotions, stress, cognition (conscious and unconscious), conditioning, volition, etc. This disparity would be sufficient reason to treat the problem circumspectly were not the effects of "mind" on immune reactivity so dramatic and paradoxical that the urge to understand becomes irresistible. This, unfortunately, encourages the use of anecdotal and correlative data to support a conclusion. Yet, quite often, the most fundamental and generalizable of concepts in biology begins with such a tolerated ambiguity which, in time, becomes delineated with experimentation. In view of the medical and social importance of "mind-related" effects on immune responsiveness, as well as our scientific curiosity concerning them, it is appropriate that we should undertake an analysis of the relationship by attempting to at least delineate the problem. This collection of essays is a modest step in that direction.

Roger Guillemin
Melvin Cohn
Theodore Melnechuk

References

1. Morton DL, Wells SA. Immunology of neoplastic disease. Davis-Christopher Textbook of Surgery, edited by Sabiston DC. Philadelphia, WB Saunders Co., 1981.
2. Gilliland BC. Introduction to clinical immunology. Harrison's Principles of Internal Medicine 10th ed, edited by Petersdorf RG, Adams RJ et al. NY, McGraw Hill, 1983.
3. Guttman RD et al. Cellular immunology. Kalamazoo, MI, Upjohn Co., 1981.
4. Zweiman B, Levinson Z. Cell-mediated immunity. Allergy Principles and Practice, edited by Meddleton E Jr, Reed CE, Ellis EF. St. Louis, CV Mosby Co., 1983.
5. Purtilo DT, Linder J. Oncological consequences of impaired immune surveillance against ubiquitous viruses. J Clin Immunol 1983;3:197-206.
6. Sonnabend F, Witkin SS, Purtilo DT. Acquired immunodeficiency syndrome, opportunistic infections, and malignancies in male homosexuals. JAMA 1983;249:2370-4.
7. Gallo RC, Sarin PS, Gelmann EP, et al. Isolation of human T-cell leukemia virus in Acquired Immune Deficiency Syndrome (AIDS). Science 1983;220:865-7.
8. Safai B, Groopman J, Popovic M, et al. Seroepidemiological studies of human T lymphotropic retrovirus type III in Acquired Immunodeficiency Syndrome. Lancet 1984;1438-40.
9. Anderson DW, Barrett JT. Ultrasound, a new immunosuppressant. Clin Immunol Immunopath 1979;14:18-29.
10. Slade NS, Simmons RL, Yunis E, et al. Immunodepression after major surgery in normal patients. Surgery 1975;78:363-372.
11. Lundy J. Anesthesia and surgery: a double-edged sword for the cancer patient. J Surg Oncol 1980;14:61-5.
12. Buinauskas P, McDonald GO, Cole WH. Role of operative stress on the resistance of the experimental animal to inoculated cancer cells. Ann Surg 1958;148:642.
13. Penn J. Cancer in immunosuppressed patients. Transplant Proc 1984;16:492-4.
14. Guttman RD, Jeakins JL. Association of energy and the development of cancer in immunosuppressed renal allograft recipients. Transplant Proc 1984;16:495-8.
15. Bieber CP, Hunt SA, Schwinn DA, et al. Complications in long term survivors of cardiac transplantation. Transplant Proc 1981;13:207-11.
16. Lanza RP, Cooper KC, Cassidy MJD, Barnard CN. Malignant neoplasms occurring after cardiac transplantation. JAMA 1983;249:174-83.
17. Deeg JH, Sanders J, Martin P, Fefer A, Neiman P, Singer J, Storb R, Thomas ED. Secondary malignancies after marrow transplantation. Exp Hematol 1984;12:660-6.
18. Blalock JE, Smith EM. A complete regulatory loop between the immune and neuroendocrine systems. Fed Proc 1985;44:198-11.
19. Wybran J. Interregulations between the immune system and the central nervous system: physiological and pathological consequences. Acta Clin Bel 1984;39:131-5.
20. Schleifer SJ, Keller SE, Camerino M, Thorton JC, Stein M. Suppression of lymphocyte stimulation following bereavement. JAMA 1983;250:374-7.
21. Guillemin R, Cohn M, Melnechuk T (eds). Neural modulation of immunity. New York: Raven Press, 1985.

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Fine-Needle Aspiration — An Aid to Breast Diagnosis

Peter A. Gentling, M.D.

• *Results of fine-needle aspiration of breast lumps and masses.*

THE breast is a particularly difficult organ to examine. To have a secure diagnostic understanding of benign versus malignant disease involves a combination of factors. The only way to assure the patient that she has no cancer in the breasts is to remove them and submit all the tissue to detailed pathologic analysis. Needless to say, bilateral prophylactic mastectomies are not practical and are certainly not desirable. Therefore we must rely on all diagnostic modes to help us detect the cancers that are so very frequent in the breast. We must try to find them as early as possible while looking toward preserving non-malignant breast tissue and avoiding costly and mutilating biopsies where possible.

The history and careful physical examination are still the most important features in breast diagnosis. Various other means have been added to sharpen diagnostic acumen and to aid in earlier diagnosis. Mammography remains the basic aid, but recently an older approach has been revived. This involves cytologic evaluation of any area in the breast which feels peculiar and which the examiner is inclined to call abnormal. Fine-needle aspiration for cytology has the advantage of adding another diagnostic aid short of excisional biopsy. It has advantages in several ways. There are also some drawbacks to its use.

The technique for fine-needle aspiration was developed by Martin and Ellis and presented in a paper published in 1930.¹ Soderstrom² pointed out that the technique was not meant to replace conventional biopsy but to complement it. Interest in the procedure waned but was revived by the Scandinavians in the 1950s.

The advantages of fine-needle aspiration (FNA) include its cheapness, its accuracy when positive, the additional information it provides in lesions not suspicious enough for excisional biopsy and in lesions suspicious for cancer where a positive diagnosis would aid in setting up staging tests and patient-education discussions. Patients may also be reassured to know a negative cell study has been done. In those having previous breast cancer the remaining breast tissue is always suspect for another cancer. Vague thickened areas may not require biopsy but bear observation. Cell studies aid in these decisions.

Disadvantages of FNA include mainly sampling error. False negative tests may be common. Pain, hematoma and

ecchymosis do occur but are minor. Cost of the procedure varies from \$50 to \$100.

The technique of FNA is easily learned. Equipment for its use is readily available and is inexpensive, but there is a technique that will maximize cell retrieval. If the procedure is poorly done, acellular specimens will result, yielding unreliable results. Some examiners use a special suction "gun" which holds the syringe, but normally-facile people do not need this special apparatus. A 10 cc syringe is used, attached to a #21 needle. No anesthesia is injected. The patient is supine with her arm held above her head to flatten the breast. The tissue in question is firmly trapped against the chest wall by three fingers of the operator's non-dominant hand. Needle introduction following alcohol swabbing of skin is accompanied by a warning that "now you will feel a small stick." The needle is passed in and out of the lesion while suction is maintained on the barrel of the syringe. Once tissue-fluid is seen in the needle neck, an adequate cell specimen is present in the needle. The instrument is withdrawn without suction so that air is not sucked up, pulling the cells into the body of the syringe. Two glass microscope slides are prepared using a drop of albumin as a protein fixative. The contents of the needle are squirted forcibly into this albumin. Occasionally a core of tissue can be removed in this way, but if little material comes forth, the albumin drop can be aspirated into the needle bore and expelled onto the slide. The two slides are touched gently together to spread the aspirate and placed directly in a container of 95% ethanol. Processing by the pathologist can follow immediately.

We make a practice of using the same pathologist for all our specimens since there is a knack of reading these slides and consistency is important. Any agreed-upon classification is acceptable. We have used a Class I through Class V approach. Class I and II smears are considered benign, Class III is suspicious, and Class IV and V are highly suspicious and frankly malignant, respectively.

False negatives remain a problem. Generally cancers will shed cells readily. When smeared, the slides are held to light; the albumin will be cloudy with cellular material. However, operator error in aspirating the proper tissue or getting considerable blood or cystic fluid can dilute the specimen and obscure malignant cells. Knowing when there is a good specimen is a matter of experience and is not difficult to learn, but a negative result is not necessarily a sign of benign disease. This must be constantly kept in

From Biltmore Surgical Associates, Biltmore Avenue, Asheville 28801.

mind. On the other hand, a Class IV or V smear has never been benign on subsequent biopsy in our experience, and under certain conditions, mastectomy has been performed with no more evidence than a suspicious physical examination, a condemning mammogram and a Class IV or V FNA.

The precise location of FNA is recorded on a patient breast consultation sheet with a clear diagram. Comments are recorded about grittiness of tissue, cellularity, associated bleeding — all signs of presumptive malignancy — and the presence of fluid with the disappearance of the mass with aspiration, relative acellularity, and softness of the mass — all signs suggesting the lesion is benign.

In terms of time, much can be gained by the FNA. At least an hour and a half is required in our office to discuss cancer of the breast, its treatment and implications. Much of this must be done prior to any operative diagnosis such as biopsy. In a busy office practice such discussion periods with the patient and her distraught relatives can needlessly frighten them while crippling an appointment schedule. Therefore, while negative FNAs do not make a benign diagnosis, they help, and positive FNAs allow for better allotment of office time to instruct the patient and her family. In addition, a bone-scan, chest x-ray and SMA-12 cost in excess of \$200 and a half-day of the patient's time. These can be more appropriately ordered using a positive FNA and strong clinical suspicion. Our pathologists can give an answer to our FNA in two hours if taken early in the day. The patient is anxious for this news and grateful for any information.

During a three year period a total of 174 FNAs were performed. Of these, 35 (20.1%) were suspicious clinically and 139 (79.9%) were benign clinically. Table 1 shows the results. Although all lesions clinically suspicious were biopsied (as should be done), those considered benign clinically and biopsied showed a surprise malignancy rate of 2.2% and represented lesions that might not have been biopsied otherwise. The remaining 80 cases not biopsied were followed by return office visits and/or repeat mammograms. The cost-benefit per unsuspected cancer showed an expenditure of \$1,475 for those cancers that might not otherwise have been biopsied. We consider this cost justifiable. There were no complications in our FNA series, and all were easily tolerated by the patients without the use of local anesthesia.

We believe fine needle aspiration to be a reasonable adjunct to breast diagnosis which can be utilized by all clinicians dealing with breast disease. The technique is

Table 1
Results of Fine-Needle Aspiration

Suspicious clinically	FNA Benign	FNA Malignant
Class I	0	0
Class II	3	3
Class III	15	15
Class IV	11	10*
Class V	6	6
	35	34
Benign clinically	FNA Benign	FNA Malignant
Class I	119	39†
Class II	16	12‡
Class III	2	1
Class IV	2	2
Class V	0	0
	139	3

*One patient, a 91-year-old woman, refused biopsy

†80 patients were not biopsied.

‡4 patients were not biopsied.

easily learned, readily available, and not very expensive. It is safe and comfortable and adds another minimally invasive mode of diagnosis. One must keep in mind the occasional false-negatives (none in our series) so that an excisional biopsy can be done if a question arises such as in any solid dominant lump. Falsely positive findings are not a problem.

The benefits of the test include reassurance for the patient as well as the physician. They involve the more appropriate use of time in counseling patients in a busy office practice setting as well as helping to minimize the distressing discussion of malignancy and its treatment choices in those with benign disease. Occasionally FNA aids in finding malignancy early in the course of this enigmatic process.

References

1. Martin ME, Ellis E. Biopsy of needle puncture and aspiration. *Ann Surg* 1930;92:169-81.
2. Soderstrom N. Fine needle aspiration. New York, Grune & Stratton, 1968.
3. Kline TS et al. Fine needle aspiration of the breast: diagnosis and pitfalls. *Cancer* 1979;44:1458-64.
4. Bauermeister ES. Role and limitation of frozen section and needle aspiration biopsy in breast cancer diagnosis. *Cancer* 1980;46:947-9.
5. Strawbridge HTG et al. Role of cytology in management of lesions of the breast. *S G & O*. 1981;152:1-7.
6. Russ JE et al. Cytologic findings of aspiration of tumors of the breast. *S G & O* 1978. 146:407-11

The Logical Path to Compliance



A 3D maze sculpture made of light-colored material, possibly wood or plastic. A path of red, semi-circular segments leads through the maze. The path starts at the bottom right, goes up and left, then loops around and goes down and left, ending near the top left. The maze has several dead ends and loops.

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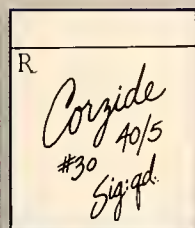
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*Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure
The 1984 report of the Joint National Committee on Detection, Evaluation and Treatment of
High Blood Pressure. Arch Intern Med 144:1045-1057, 1984.

Please see brief summary of prescribing information on following page

CORZIDE®

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Nadolol-Bendroflumethiazide Tablets

DESCRIPTION: CORZIDE (Nadolol-Bendroflumethiazide Tablets) for oral administration combines two antihypertensive agents: CORGARD® (nadolol), a nonselective beta-adrenergic blocking agent, and NATURETIN® (bendroflumethiazide), a thiazide diuretic-antihypertensive. Formulations: 40 mg and 80 mg nadolol per tablet combined with 5 mg bendroflumethiazide.

CONTRAINDICATIONS: Nadolol — Bronchial asthma, sinus bradycardia and greater than first degree conduction block, cardiogenic shock, and overt cardiac failure (see WARNINGS). Bendroflumethiazide — Anuria, and in those with previous hypersensitivity to bendroflumethiazide or other sulfonamide-derived drugs.

WARNINGS: Nadolol — **Cardiac Failure** — Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta-blockers should be avoided in overt congestive heart failure, if necessary, they can be used with caution in patients with a history of failure who are compensated, usually with digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle. **IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE**, continued use of beta-blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, digitalis and/or diuretics, and closely observe response, or discontinue nadolol (gradually, if possible).

Exacerbation of Ischemic Heart Disease Following Abrupt Withdrawal —

Hypersensitivity to catecholamines has been observed in patients withdrawn from beta-blocker therapy, exacerbation of angina and, in some cases, myocardial infarction have occurred after abrupt discontinuation of such therapy. When discontinuing chronic use of nadolol, particularly in patients with ischemic heart disease, gradually reduce dosage over a 1- to 2-week period and carefully monitor the patient. Reinitiate nadolol promptly (at least temporarily) and take other measures appropriate for management of unstable angina if angina markedly worsens or acute coronary insufficiency develops. Warn patients not to interrupt or discontinue therapy without physician's advice. Because coronary artery disease is common and may be unrecognized, it may be prudent not to discontinue nadolol therapy abruptly even in patients treated only for hypertension.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA-BLOCKERS. Administer nadolol with caution since it may block bronchodilation produced by adrenergic or exogenous catecholamine stimulation of beta₂ receptors. **Major Surgery** — Because beta blockade impairs the ability of the heart to respond to reflex stimuli and may increase the risks of general anesthesia and surgical procedures, resulting in protracted hypotension or low cardiac output, it has generally been suggested that such therapy should be withdrawn several days prior to surgery. Recognition of the increased sensitivity to catecholamines of patients recently withdrawn from beta-blocker therapy, however, has made this recommendation controversial. If possible, withdraw beta-blockers well before surgery takes place. In emergency surgery, inform the anesthesiologist that the patient is on beta-blocker therapy. Use of beta-receptor agonists such as isoproterenol, dopamine, dobutamine, or levaterenol can reverse the effects of nadolol. Difficulty in restarting and maintaining the heart beat has also been reported with beta-adrenergic receptor blocking agents. **Diabetes and Hypoglycemia** — Beta-adrenergic blockade may prevent the appearance of premonitory signs and symptoms (e.g., tachycardia and blood pressure changes) of acute hypoglycemia. This is especially important with labile diabetics. Beta blockade also reduces release of insulin in response to hypoglycemia; therefore, it may be necessary to adjust dose of antidiabetic drugs. **Thyrotoxicosis** — Beta-adrenergic blockade may mask certain clinical signs (e.g., tachycardia) of hyperthyroidism. To avoid abrupt withdrawal of beta-adrenergic blockade which might precipitate a thyroid storm, carefully manage patients suspected of developing thyrotoxicosis.

Bendroflumethiazide — Use with caution in severe renal disease. In patients with renal disease, azotemia may be precipitated. With impaired renal function, effects of the drug may be cumulative. Use with caution in impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma. Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma. Possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

PRECAUTIONS: General — Nadolol — Use with caution in patients with impaired hepatic or renal function (see DOSAGE AND ADMINISTRATION).

Bendroflumethiazide — At appropriate intervals, perform serum electrolytes determination to detect possible electrolyte imbalance warning signs of which are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and G.I. disturbances such as nausea and vomiting. Observe patients for clinical signs of fluid or electrolyte imbalance, namely, hyponatremia, hypochloremic alkalosis, hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Drugs such as digitalis may influence serum electrolytes. Hypokalemia may develop, especially with brisk diuresis, in presence of severe cirrhosis. Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Response of the heart to toxic effects of digitalis can be exaggerated with hypokalemia. Use potassium supplements such as high potassium foods to avoid or treat hypokalemia. Any chloride deficit is generally mild and usually does not require specific therapy except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather. Appropriate therapy is water restriction rather than salt administration except in rare instances when the hyponatremia is life threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain thiazide-treated patients. Latent diabetes mellitus may become manifest during thiazide therapy. Antihypertensive effects of bendroflumethiazide may be enhanced in the postsympathectomy patient.

Careful reappraisal of therapy and consideration given to withholding or stopping diuretic therapy is necessary if rising nonprotein nitrogen or BUN indicative of progressive renal impairment occurs. Thiazides may decrease serum PBI levels without signs of thyroid disturbance. Thiazides decrease calcium excretion. Pathologic changes in parathyroid gland with hypercalcemia and hypophosphatemia have been occasionally observed with prolonged therapy. Common complications of hyperparathyroidism have not been seen.

Information for Patients — Warn patients, especially those with evidence of coronary artery insufficiency, against interruption or discontinuation of nadolol without physician's advice. Although cardiac failure rarely occurs in properly selected patients, advise patients being treated with beta-adrenergic blocking agents to consult physician at the first sign or symptom of impending failure. Advise patients of proper course if dose inadvertently missed.

Laboratory Tests — Regularly monitor serum and urine electrolyte levels (see WARNINGS, Bendroflumethiazide, and PRECAUTIONS, General, Bendroflumethiazide).

Drug Interactions — Nadolol — When administered concurrently the following drugs may interact with beta-adrenergic blocking agents. **Anesthetics, general** — exaggeration of anesthetic-induced hypotension (see WARNINGS, Nadolol, Major Surgery). **Antidiabetic drugs (oral agents and insulin)** — hypoglycemia or hyperglycemia, adjust antidiabetic drug dosage accordingly (see WARNINGS, Nadolol, Diabetes and Hypoglycemia). **Catecholamine-depleting drugs (e.g., reserpine)** — additive effect, monitor closely for evidence of hypotension and/or excessive bradycardia.

Bendroflumethiazide — When administered concurrently the following drugs may interact with thiazide diuretics. **Alcohol, barbiturates, or narcotics** — may potentiate orthostatic hypotension. **Antidiabetic drugs (oral agents and insulin)** — thiazide-induced hyperglycemia may require adjustment of antidiabetic drug dosage. **Other antihypertensive drugs** — additive or potentiated effect. **Corticosteroids, ACTH** — intensified electrolyte depletion, particularly hypokalemia. **Ganglionic or peripheral adrenergic blocking drugs** — potentiated effect. **Preanesthetic and anesthetic agents** — effects may be potentiated, adjust dosage accordingly. **Pressor amines (e.g., norepinephrine)** — possible decrease response but not sufficient to preclude their use. **Skeletal muscle relaxants, nondepolarizing (e.g., tubocurarine)** — possible increased response.

Drug/Laboratory Test Interactions — Discontinue thiazides before tests for parathyroid function (see PRECAUTIONS, General, Bendroflumethiazide).

Carcinogenesis, Mutagenesis, Impairment of Fertility — Nadolol — In 1 to 2 years oral toxicologic studies in mice, rats, and dogs, nadolol did not produce neoplastic, teratogenic, or nonneoplastic pathologic lesions. **Bendroflumethiazide** — Long-term studies in animals have not been performed.

Pregnancy — **Teratogenic Effects** — Nadolol — Category C. In animal reproduction studies with nadolol, evidence of embryo- and fetotoxicity was found in rabbits, but not in rats or hamsters, at doses 5 to 10 times greater (on a mg/kg basis) than the maximum indicated human dose. No teratogenic potential was seen in any of these species. There are no well-controlled studies in pregnant women, therefore, use nadolol in pregnant women only if potential benefit justifies potential risk to the fetus. **Bendroflumethiazide** — Category C. Animal reproduction studies have not been conducted. This drug's effect on the fetus when administered to a pregnant woman or its effect on reproductive capacity is not known. Bendroflumethiazide should be given to a pregnant woman only if clearly needed. **Nonteratogenic Effects** — Since thiazides cross the placental barrier and appear in cord blood, weigh anticipated benefit of the drug in pregnant women against possible hazards to the fetus, these hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other reactions which have occurred in adults.

Nursing Mothers — Both nadolol and bendroflumethiazide are excreted in human milk. Because of the potential for serious adverse reactions in nursing infants either discontinue nursing or discontinue therapy, taking into account the importance of CORZIDE (Nadolol-Bendroflumethiazide Tablets) to the mother.

Pediatric Use — Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: Nadolol — Most adverse effects have been mild and transient and have rarely required nadolol withdrawal. **Cardiovascular** — Bradycardia with heart rates of less than 60 beats per minute occurs commonly, and heart rates below 40 beats per minute and/or symptomatic bradycardia were seen in about 2 of 100 patients. Symptoms of peripheral vascular insufficiency, usually of the Raynaud type, have occurred in approximately 2 of 100 patients. Cardiac failure, hypotension, and rhythm/conduction disturbances have each occurred in about 1 of 100 patients. Single instances of first degree and third degree heart block have been reported, intensification of AV block is a known effect of beta-blockers (see also CONTRAINDICATIONS, WARNINGS, and PRECAUTIONS). **Central Nervous System** — Dizziness or fatigue reported in approximately 2 of 100 patients, paresthesias, sedation, and change in behavior reported in approximately 6 of 1000 patients. **Respiratory** — Bronchospasm reported in approximately 1 of 1000 patients (see CONTRAINDICATIONS and WARNINGS). **Gastrointestinal** — Nausea, diarrhea, abdominal discomfort, constipation, vomiting, indigestion, anorexia, bloating, and flatulence each reported in 1 to 5 of 1000 patients. **Miscellaneous** — Each of the following reported in 1 to 5 of 1000 patients: rash, pruritus, headache, dry mouth, eyes, or skin, impotence or decreased libido, facial swelling, weight gain, slurred speech, cough, nasal stuffiness, sweating, tinnitus, blurred vision. Although relationship to drug usage is not clear, sleep disturbances have been reported. The neuro-musculoskeletal syndrome associated with praxolol has not been reported with nadolol. The following adverse reactions may also occur. **Central Nervous System** — reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability with slightly clouded sensorium, decreased performance on neuropsychometrics. **Gastrointestinal** — mesenteric arterial thrombosis; ischemic colitis. **Hematologic** — agranulocytosis, thrombocytopenic or nonthrombocytopenic purpura. **Allergic** — fever combined with aching and sore throat, laryngospasm, respiratory distress. **Miscellaneous** — reversible alopecia, Peyronie's disease, erythematous rash, arterial insufficiency.

Bendroflumethiazide — **Gastrointestinal System** — anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis. **Central Nervous System** — dizziness, vertigo, paresthesia, headache, xanthopsia. **Hematologic** — leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia. **Dermatologic-Hypersensitivity** — purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis). **Cardiovascular** — orthostatic hypotension may occur. **Other** — hyperglycemia, glycosuria, occasional metabolic acidosis in diabetics, hyperuricemia, allergic glomerulonephritis, muscle spasm, weakness, restlessness. Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

OVERDOSAGE: Nadolol may cause excessive bradycardia, cardiac failure, hypotension, or bronchospasm if overdosed. Overdosage of thiazides may cause lethargy, which may progress to coma within a few hours, with minimal depression of respiration and cardiovascular function and without evidence of serum electrolyte changes or dehydration. Gastrointestinal irritation and hypermolemia may occur. Transitory increase in BUN and serum electrolyte changes may occur, especially in patients with renal impairment.

Treatment — Nadolol can be removed from the general circulation by hemodialysis. In determining duration of corrective therapy, take note of the long duration of the effect of nadolol. In addition to gastric lavage, employ the following measures, as appropriate. **Excessive Bradycardia** — Administer atropine (0.25 to 1.0 mg). If there is no response to vagal blockade, administer isoproterenol cautiously. **Cardiac Failure** — Administer a digitalis glycoside and diuretic. It has been reported that glucagon may also be useful in this situation. **Hypotension** — Administer vasopressors, e.g., epinephrine or levaterenol. (There is evidence that epinephrine may be the drug of choice.) **Bronchospasm** — Administer a beta₂-stimulating agent and/or a theophylline derivative. **Super or Coma** — Supportive therapy as warranted. **Gastrointestinal Effects** — Symptomatic treatment as needed. **BUN and/or Serum Electrolyte Abnormalities** — Institute supportive measures as required to maintain hydration, electrolyte balance, respiration, and cardiovascular and renal function.

DOSAGE AND ADMINISTRATION: DOSAGE MUST BE INDIVIDUALIZED. Patients with renal failure require adjustment in dosing interval, see package insert for dosage in these patients.

Consult package insert before prescribing CORZIDE (Nadolol-Bendroflumethiazide Tablets).

HOW SUPPLIED: Available as scored tablets containing 40 mg nadolol combined with 5 mg bendroflumethiazide and 80 mg nadolol combined with 5 mg bendroflumethiazide in bottles of 100.

A Cost-Effective Community Model for Treating Alcohol Withdrawal Syndrome: A Preliminary Report

J. Paul Martin, M.D., Ellis Edney, Dan I. Gerber, Ph.D., William Meagher, David Silver, M.D.

- *An early report on a nonmedical detoxification center treating alcohol withdrawal syndrome since September 1984.*

THE alcohol withdrawal syndrome has been defined as the constellation of signs and symptoms that occur within hours to days of abstinence following habitual drinking of ethanol. The withdrawal syndrome may include anxiety, depression, tremor, tachycardia, hypertension, hallucinosis, confusion, seizures, or delirium tremens.¹⁻³ Because of the reported high incidence of morbidity and mortality associated with DTs, the traditional medical approach to acute detoxification of the alcoholic has included hospitalization, IV therapy and tapering doses of benzodiazepines. This approach is expensive, disruptive to the routines of a typical medical ward or ICU, and has not been shown to eliminate the mortality associated with delirium tremens. Additionally the high incidence of readmission for detoxification within weeks to months has been a source of frustration for medical house officers over the decades.

Nonmedical social setting detoxification has been promoted as a safe, cost efficient approach to the alcohol withdrawal syndrome. This concept was developed in 1969 by the Addiction Research Foundation in Toronto, Canada in response to observations of Canadian medical detoxification programs. N. William Petersen reported that 95% of the 4,000 patients seen over a 26-month period in a traditional medical detoxification facility did not require immediate medical care to become sober.⁴ Instead, after designing and operating a social-setting detoxification model in Toronto, the experience demonstrated that the patients responded well to the social support and interaction with staff in a calm, anxiety-free environment.⁵

The social-setting philosophy of detoxification and the programs that spread from Toronto verified that a nonmedical staff trained to recognize possible medical complications and backed up by a general hospital could provide a safe, effective and cost-efficient alternative.⁶ Daily costs per patient were dramatically reduced to generally less than 25% of the costs of a hospital day.⁷ Referral to on-going treatment and service programs for further recovery assistance became a major focus in the social-setting philosophy

and created the potential to reduce recidivism.

The State of North Carolina began a plan through which inebriates would be provided detoxification services in the least restrictive setting, close to their own community. In 1983 the State hospitals (John Umstead, Cherry, Dorothea Dix, Broughton, and the Detoxification Unit at the Black Mountain Alcoholic Rehabilitation Center) began to close their doors to inebriates who exhibited no psychiatric disorders. State funds were transferred to local communities for the development and provision of social-setting residential detoxification facilities.

To meet the challenge of providing safe, cost-effective care, the social-setting detoxification facility must have consistent, responsive medical backup to attend to the 5% of patients needing inpatient observation. The Mountain Area Health Education Center Family Practice Residency Program and the Blue Ridge Center for Mental Health, Mental Retardation and Substance Abuse Services have cooperated to create a unique social-setting/medical model that has utilized an innovative approach resulting in dramatic inpatient cost reductions.

An Alternative Model

Inebriated patients arrive at the Blue Ridge Mental Health Neil Dobbins Social Detoxification Center on referral by self, family, physician, A.A., medical facility, or law enforcement agency. Their initial evaluation includes an extensive medical and psychosocial history to assess the severity of complications due to alcoholism and underlying medical and psychiatric illness. Patients with significant cardiovascular disease, polyaddiction, history of life-threatening symptoms of withdrawal, or other major medical concerns are referred for evaluation by a Family Practice resident physician. There are no physicians or nurses at the social-setting detoxification facility; health care technicians monitor vital signs. The personnel at the Dobbins Center may not administer any medication. They do remind the patients to take their chronic medication at the prescribed times. No patient is admitted who requires tapering sedatives, parenteral medication, or newly instituted psychotropic drugs.

Patients are admitted to the residential unit for three to

From Mountain Area Family Health Center, 491 Biltmore Avenue, Asheville 28801.

five days. From the day of admission they are involved in a supportive, but directive, rehabilitation process that includes individual and group therapy, A.A. meetings, and arrangements for involvement of the patient and the patient's family in aftercare. Patients are responsible for housekeeping tasks during their stay.

Those patients referred for medical evaluation are seen by resident physicians from the MAHEC Family Practice Residency Program in the emergency room at Memorial Mission Hospital. Consultation is available from the resident physicians 24 hours per day; this experience is an integral part of the Residency Program's curriculum in addictions.

Patients requiring admission to the hospital are placed on the Family Medicine inservice and are supervised by one of four rotating attending faculty. All patients admitted from the social detoxification center are placed on a protocol that has features that surprise many who were schooled in the traditional medical detoxification model. None of the patients receive intravenous medications and none are given benzodiazepines.

The protocol is an adaptation of one utilized by Dr. John Mooney at Willingway Hospital in Statesboro, GA (see Appendix A). By avoiding intravenous treatment, costs and nursing time are reduced significantly. Although some were clinically volume depleted, all our patients were able to adequately rehydrate themselves orally. There is evidence to support the view that many cases of "DTs" are actually iatrogenically-induced symptoms of cerebral edema from overzealous intravenous hydration. Phenobarbital has multiple advantages over benzodiazepines⁸ including antiseizure effects when administered orally.

The patients admitted to the hospital were begun on the protocol and observed for progression or resolution of symptoms. If symptoms of impending DTs quickly abated, the protocol was suspended, and following appropriate observation the patient was returned to the social detoxification unit — on no mood-altering drugs. If signs and symptoms of DTs persisted or progressed, the protocol was continued. When the inpatient treatment for DTs was complete, the patient was referred to the social detoxification unit, without sedatives or other mood-altering drugs.

Results

Between September 1984 and February 1985 there were 400 admissions to the Dobbins Center Residential Social Detoxification Facility (table 1): 70% of the admissions were "one-timers"; 30% of the admissions were "recidivists."

The 400 admissions required 51 evaluations by a physician. Some of these involved simple treatment of lacerations or refill of prescription for chronic antihypertensive medication. Twenty of the patients evaluated were admitted for inpatient observation and treatment at Memorial Mission Hospital. The average length of stay was 1½ days, for a combined total of 31 hospital days!

None of the patients admitted to the hospital required rehospitalization during the study period. There were no deaths, no Intensive Care beds were utilized, and there were no complications of therapy.

Of the 400 admissions to the Dobbins Center, 320 indi-

Table 1

Statistics of Admissions to the Neil Dobbins Social-Setting Detoxification Center September 1984 through February 1985

	Male	Female	Total
Admitted	345	55	400
Individuals involved	280	40	320
Physician referrals	38	13	51
Patients hospitalized	17	3	20
Hospital days	23	8	31
Discharge Referrals			
A. 28-day program	34	8	
B. Outpatient counselling	24	3	
C. Halfway house	10	2	
D. First Step Farm	12	—	
E. Western Carolina Rescue Mission	11	—	
F. Long term	1	—	
G. VA program	22	—	127

viduals were involved in the study population; 127 (40%) of these were entered in alcoholic rehabilitation programs in addition to Alcoholics Anonymous.

Discussion

Treatment of the alcohol withdrawal syndrome utilizing the traditional medical model is expensive, frustrating, and fraught with complications of therapy and a high rate of recidivism. Social setting detoxification has proven itself effective and cost efficient, but must have dependable medical backup. In our series 13% of the admissions to the social-setting detoxification center required physician evaluation and 5% required hospitalization. These data are consistent with the experience in Toronto as described in the introduction.¹

The remarkably brief average length of hospitalization in this study deserves further discussion. The population admitted to the hospital represented the 5% at highest risk; among this group were patients with seizure disorders, marked coronary artery disease, prior documented history of DTs, psychiatric disorders, intercurrent pyelonephritis, and severe hypertension. Histories were not always reliable, and noncompliance with prior medical advice and therapy was the norm.

The protocol as described in Appendix A minimized iatrogenic complications and effectively managed symptoms. No seizures occurred with this protocol and all patients were ambulatory within 18 hours of admission.

The success of early transfer to the social-setting detoxification center was made possible by the shared philosophy to minimize drug administration during the withdrawal phase. Hospitalized patients who would not have been ready for discharge home could be transferred to the social-setting unit where skilled observation and enforced abstinence occurred.

The medical aspects of alcohol withdrawal are only a small part (albeit traditionally expensive) of the rehabilitation of the alcoholic. Long-term success is dependent upon coordination of all aspects of the rehabilitation process. Drugs that inhibit or delay sobriety must be limited to

treatment of life-threatening symptoms. Drugs used in treating the withdrawal syndrome are dulling and have a negative effect on selfcare and sociability of the alcoholic and may inhibit a clearheaded self-appraisal and acceptance of rehabilitation. Drugs may become associated with the relief of painful symptoms in the alcoholic; this may reinforce dependency on drugs and especially on the use of alcohol to cope with stressful situations.⁹

The social setting detoxification program utilizes the discomfort associated with withdrawal in a positive fashion to reinforce the disease concept of alcoholism and to underscore the alcoholic's responsibility for the consequences of his/her actions. This attitude that the alcoholic is responsible for his/her recovery must pervade both the social setting and the medical setting. The patient should participate in his/her recovery throughout the process, and should not be excused to passively receive treatment in the hospital.

The fact that no patients required rehospitalization during the study period reflects admirably on the Dobbins Center intervention. A high percentage (40%) of patients were enrolled in specific aftercare programs to supplement involvement in A.A.; 289 persons did not require readmission to the Dobbins Center. Early readmission to the social-setting unit cannot be construed as a failure if it obviates hospitalization.

The cooperation between the Blue Ridge Mental Health social-setting detoxification unit and the MAHEC Family Practice Residency Program inpatient service has resulted in an effective, cost-efficient alternative to treat the alcohol withdrawal syndrome.

References

- Victor M, Adams RD. Alcohol. In Harrison's Principles of internal medicine, 10th ed, Petersdorf et al (eds). NY: McGraw-Hill, 1983.
- Schraeder PL. Central nervous system intoxications. In Fundamentals of internal medicine, Kaye D, Rose LF (eds). St. Louis: Mosby 1983.
- Anderson RC. Alcoholism. In Rakel R. Textbook of family practice, 3rd ed, Philadelphia, Saunders, 1984.
- Sparedo FR, Zwick WR, Ruggiero SD, Meek DA, Carloni FA, Simone SS. Evaluation of a social-setting detoxification program. *Studies Alcohol* 1982;48.
- O'Briant R. How safe is social-setting detoxification? *Alcohol Health and Re-*

- search World. Rockville, Maryland: Winter 1976/77. Dept. of HEW
- O'Briant G. Social-setting detoxification. *Alcohol Health and Research World*. Rockville, Maryland: Winter 1974/75. Dept. of HEW
- Whitfield CL. Detoxification without drugs. In Whitfield CL. The patient with alcoholism and other drug problems
- Smith DE. Benzodiazepine dependence potential: current studies and trends. *Subst Abuse Treat* 1984;1:163-7
- McGovern M. Comparative evaluation of medical vs social treatment of alcohol withdrawal syndrome. *J Clin Psych* 1983;39:791-803.

Appendix A

Routine Medical Detoxification Protocol*

- Admit to medical floor. Dx. — Alcoholism, alcohol withdrawal syndrome, depression.
- Condition — guarded.
- Constant observation by attendant for ____ hours.
- Darken room, night light on, bedrails up, urinal at bedside, BRP with assistance only.
- Vital signs — orientation, pulse, respiration, temp., BP, q ____ H × ____ Hrs.
- Diet — as tolerated. Fluids and snacks at bedside.
- Admission Lab — CBC with platelet count, electrolytes, glucose, UA — STAT
CBS-22; CXR and EKG when stable.
Blood alcohol level. Urine drug screen.
- Phenergan 50 mg IM on admission. Thiamine 100 mg IM on admission.
- MgSO₄ 1 g IM q 8 h × 6 doses.
- Phenobarbital 60 mg TID × 2 days, then
30 mg TID × 2 days, then
15 mg BID × 1 day
- Sodium Luminal Gr. II to IV IM PRN agitation × 1.
- Vistaril 50-100 mg IM PRN anxiety × 1.
- Tylenol Gr × q 4 h PRN headache
- Robaxin 750 mg qid PRN muscle cramps. P.O.
- Nembutal 50 mg P.O. or IM qHS PRN sleep. May repeat × 1 after 30 min.
- Call physician for:
 - (1) marked agitation/change in mental status;
 - (2) temp. greater than 100.4;
 - (3) pulse greater than 100 on two occasions or for upward trend in pulse or BP;
 - (4) BP greater than 170/95.
- No visitors

*Adapted from Willingway Hospital, Statesboro, GA

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IN STATE

September 13

Medical Staff Legal Status: Independent or Dependent?

Place: Greenville

Credit: 8 hours Category 1 AMA

Info: Office of CME, ECU School of Medicine, Box 7224, Greenville 27835-7224. 919/758-5200, ext. 208

September 17

Crisis — Then & Now

Place: Asheville

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 800/662-7917

September 18

Echocardiography and Doppler Carotid Examinations

Place: Sanford

Info: R. S. Cline, M.D., Central Carolina Hospital, 1135 Carthage Street, Sanford 27330. 919/774-6518

September 18-22

New Horizons in Pediatric Urology

Place: Pinehurst

Credit: 25 hours Category 1 AMA

Info: Linda Mace, Box 3707, DUMC, Durham 27710

September 19-21

Surgery of Facial Skeleton

Place: Charlotte

Info: Ellison F. Edwards, M.D., 3535 Randolph Road, Charlotte 28211

September 23-November 15

Postgraduate Courses in Medical Sonics

Place: Winston-Salem

Credit: 35 hours per week Category 1 AMA

Info: Dianne L. Willard, Bowman Gray, Winston-Salem 27103. 919/748-4505

September 24

Crisis — Then & Now

Place: Greenville

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 800/662-7917

September 27-28

Advanced Cardiac Life Support Provider Course

Place: Asheville

Credit: 16 hours Category 1 AMA, ACEP, 16 prescribed hours AAFP

Fee: \$200

Info: Daniel L. Dolan, M.D., MAHEC, 501 Biltmore Avenue, Asheville 28801-4686. 704/258-0881

October 2

Crisis — Then & Now

Place: Kinston

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 800/662-7917

October 16

Oxygen Use — CO₂ Narcosis and Ventilator Use

Place: Sanford

Credit: 2 hours Category 1 AMA

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

October 19-20

Jungian Techniques of Analytic Hypnotherapy

Place: Chapel Hill

Credit: 12 hours Category 1 AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

October 29

Crisis — Then & Now

Place: Kinston

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 800/662-7917

November 1-2

Alcohol and Drug Abuse

Place: Chapel Hill

Credit: 10 hours Category 1 AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

November 1-2

Review of the Management of SIDS and Near-Miss SIDS

Place: Chapel Hill

Credit: 7 hours Category 1 AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

November 20

Endocrinology for the Lifetime of the Female

Place: Sanford

Credit: 2 hours Category 1 AMA

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

OUT OF STATE

September 5-7

Doppler Echocardiography Seminar

Place: Isle of Palms, SC

Credit: 16 hours Category 1 AMA

Info: Dianne L. Willard, Bowman Gray, Winston-Salem 27103. 919/748-4505

September 12-14

Advanced Applied Ultrasound in Obstetrics Seminar

Place: Myrtle Beach, SC

Credit: 12 hours Category 1 AMA

Info: James F. Martin, M.D., Center for Medical Ultrasound, Bowman Gray, Winston-Salem 27103. 919/758-4505

October 4

Selected Topics in Pediatrics

Place: Norfolk, VA

Info: Jean E. Shelton, M.D., 800 West Olney Road, Norfolk, VA 23507. 804/628-3798

October 5

Advances in Human Genetics and Reproduction

Place: Arlington, VA

Info: Brenda English, 3300 Gallows Road, Falls Church, VA 22046. 703/698-3481

October 17-24

Review of Clinical Chemistry for Practicing Pathologists and Clinical Chemists

Place: San Diego, CA

Fee: \$315

Credit: 40 hours Category 1 AMA

Info: Office of CME, ECU School of Medicine, Box 7224, Greenville 27835-7224. 919/758-5200, ext. 208

October 29-November 2

Diagnostic Imaging

Place: Southampton, Bermuda

Fee: \$495

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Letters to the Editor

To the Readership from the Managing Editor

You may have noticed that the July NCMJ reached your eager clutches just barely under the wire — July 30 if you were lucky, July 31 otherwise. We do apologize. The July issue was designed to include a 24 page central article, removable via a process that involves triple stapling with three separate journeys through the bindery. Because of a very great number of changes needed in that article at the very last minute, we had to pull it from the July issue and will publish it in October. To accommodate the loss of 24 pages, our valiant printers had to repaste the entire issue, moving inserted ads to balance front and back, and, in particular, moving the internal color to appear in the same 16-page signature to save money. The issue, printed and bound, left our printer in Fulton, MO, on the afternoon of July 22. Where it spent the next seven or eight days is a mystery even the Postal Service cannot solve. We apologize for our part in the delay. The Postal Service has no comment.

Patricia Hodgson
Box 3910
Duke Hospital
Durham 27710

An Open Letter to the President of R. J. Reynolds Tobacco Company

As a retired physician who practiced for many years in North Carolina I am deeply committed, as I am sure you are, to promoting the health of the people of our State. The notable contributions of the Duke Foundation to that end have been a credit to your industry. However, a recent issue of the *Journal of the American Medical Association* contains a number of papers which reflect the studied opinion of my profession on the role of tobacco in serious diseases, an opinion based on thirty-five years of careful observation and research.

The growing, processing and sale of tobacco and its products plays such an important part in the economy of our State that no one should damn it without offering reasonable alternatives. As a starter, may I offer the following suggestions?

1. That the R. J. Reynolds Tobacco Company take the lead and establish a foundation to discover and develop an alternative crop to tobacco which our farmers could profitably grow;
2. That your Company search out and develop an alternative industry, utilizing the talents of your management personnel and the energy of your workers with long-term benefits to all concerned;
3. That a time schedule be set up during which a gradual conversion could be completed, one that could be long enough to cover the life span of persons already dependent on tobacco with immediate cessation of efforts to encourage use by the young;
4. And that this or a similar program be actively publicized

in order to receive the well deserved good will and support of the public.

Please favor me with your reaction. I am taking the liberty of sending you a copy of the recent *Journal of the American Medical Association*.

Alex S. Moffett, M.D.
70 West Lucerne Circle
Orlando, FL 32801

Editor's Comment

The insistence of the leaders in the tobacco companies that there is no link between cigarette smoking and cancer and emphysema does a great disservice to the image of American industrialists. They show us every day the force of self-interest and make us distrust all statements made by industrialists about safe working conditions and the safety of their products.

Eisenhower's statement that we were not spying on the Russians with our U2 airplane destroyed some of our simple faith in statements by our government. The tobacco companies' refusal to face honestly the links between diseases and cigarette smoking destroys our faith in industrial leadership. Until the tobacco companies face this issue squarely, they will do nothing to help our small farmers create a new money crop.

WWII Duke: COs, POWs, V-12, ASTP et al

The article about the conscientious objectors (NCMJ 1985;46:419-23) at Duke by Louis Swanson and James Gifford brings back memories. We had an unusual conglomeration at Duke during that time. As noted, there were the conscientious objectors. Most of the medical students were either in the V-12 Navy program or the ASTP Army program and were in respective military uniforms. Dr. Robert (Daddy) Ross continued his OB practice, along with commanding the Navy unit at Duke.

Another interesting group were the German soldiers who worked at Duke Hospital during the last part of the war. These prisoners of war were transported back and forth from Camp Butner. Although I don't remember the exact words, I do remember interesting conversations with the German POWs who could speak English, the conscientious objectors, and we medical students who were in the Navy and the Army. The thing I remember most is the inquisitiveness that each had about the other. A more exact, detailed documentation of those encounters would be quite interesting.

Thomas B. Dameron, Jr., M.D.
Box 10707
Raleigh 27605

Family Medicine at Duke: Another View

As a Family Physician, I have read with great interest the special article regarding Family Medicine written by Dr. Robert Sullivan in the June 1985 issue of the *North Caroli-*

na Medical Journal (NCMJ 1985;46:329-31). It is obvious that the article was written to present Duke Medical Center's viewpoint. Just enough historical data is presented to make the casual reader believe this to be an unbiased and factual report.

Far from it. The author is from the Department of Medicine which presented the greatest opposition to Family Medicine and to a favorable solution to the problems. Many of the statements in the article deserve comments.

The author states many are "skeptical that one person can know enough to do the job well." Not all graduates of any specialty residency perform their job well, but the track record of graduates of Family Practice Residency Programs across the country has been a record of quality care. Family physicians are required to obtain 150 hours of approved postgraduate education every three years to maintain membership in the American Academy of Family Physicians. Further, the certification by the American Board of Family Practice requires re-certification every six years. These educational requirements contribute to the quality care of Family Physicians.

Another statement in the article, "Logic dictated the new program be placed in the local community hospital." This move may have been good for the program, but showed a lack of commitment by Duke from the first. Later, the various departments accused the Family Medicine Program of being disloyal to Duke because they hospitalized their patients at Durham County Hospital and used local consultants rather than the facilities at Duke Hospital. However, the clinical departments have consistently opposed admitting privileges to Family Physicians. How many physicians would be happy to admit their patients to a hospital where they can have no part in the care of their patients?

Another statement, "Family Medicine (holistic, integrative, and humanistic) challenged deep-rooted traditions in academic medicine and clinical practice." There are deep philosophical differences between the disciplines, but if academic medicine does not believe in bonding between patient and doctor, and the continuity of care of patients, then in my opinion, academic medicine is far off course. This statement, in my opinion, represents a group of physicians who have not experienced on-going contact with a patient in years — if ever.

The article deserves many more comments, but because this is a letter to the editor instead of a special article, I will instead offer a few comments of my own.

The Lewin & Associates External Review offered four options:

1. Status quo.
2. Strengthen the Department of Community and Family Medicine, directing other departments to accept its role and integrate it more fully into the Medical Center.
3. Eliminate Family Medicine as a primary care discipline, and replace it with a new integrated program in primary care under the Departments of Medicine, Pediatrics, and OB-Gyn.
4. Eliminate all primary care programs, and accept a role as a purely tertiary institution.

Option 2 was recommended by the report. As we know, Option 3 was selected by the Duke Medical Center. I fail to

understand how departments that have opted for subspecialty training and have no experience or understanding of primary care can run a program in primary care. I might further point out that Duke has never been known for its cooperative interaction between departments. This would be another point against the success of a primary care program under these specialty departments.

Was Family Medicine "destructive to the fabric of the organization?" I hardly think so. The Family Practice Residency graduates have contributed greatly on a statewide basis. The statement relating to the destruction of forces to the fabric is presented in part because of economic problems resulting from decisions by self-centered departments. The cause of these problems is still present at Duke.

No, Dr. Sullivan — this will not pass as did the decisions on the School of Nursing and Education. Today, we are dealing with the health needs of North Carolina — not the selfish interests of various departments in Duke Medical Center. The people of North Carolina will not let this pass. Duke should *not* let this pass. Did Duke truly make the attempt to support the Family Medicine Program or was it just in name only?

We need sub-specialists in all fields. No one, particularly Family Physicians, deny this fact. But we also need the generalists — the Family Physician, the general Internist, and the general Pediatrician. The people of North Carolina need these physicians for quality health care. We must put aside personal differences and work together for the good of North Carolina. The citizens of North Carolina deserve quality health care in every hamlet and county of the state. I hope Duke will reconsider.

George T. Wolff, M.D.
1016 A Professional Village
Greensboro 27401

And Another

I would like to take a second look at Dr. Robert Sullivan's article (NCMJ 1985;46:329-31) justifying Duke's decision to terminate its Family Medicine Program. Dr. Sullivan pointed out most of the pertinent facts of the case quite accurately. I would like to briefly reiterate those facts.

Following a nationwide trend, Duke created a Department of Family Medicine in 1972, but "it was not done with unanimous faculty acclaim." Duke University Hospital was already crowded with referral patients and did not want the Family Practice Program. Durham County Hospital, the nearby community hospital, did want the program.

Not only was there lack of faculty acclaim for Family Medicine and lack of Duke University Hospital support for a Family Medicine Program, Duke went so far as to make the medical center completely off limits to Family Physicians. Family Physicians, whether residents or faculty, did not have admitting privileges at the Duke Medical Center. Since at Family Medicine's inception Duke had a monopoly on specialty care in Durham County, at first residents and faculty had no choice but to send their patients to Duke. However, in the following years, private subspecialty care flourished in Durham County. With the availability of

excellent private consultants. Family Medicine patients then went to Durham County Hospital where the residents and faculty could admit and care for their own patients with appropriate consultation. The Family Practice program could practice comprehensive and continuous care only at Durham County Hospital.

Family Medicine at Duke University was a success. Both Family Medicine trainees and their graduates helped to fill health manpower shortages in North Carolina. Also Family Medicine was a success in attracting state dollars through the AHEC system. Family Medicine was a success despite lack of support of the University Hospital and continued "internal problems."

As economics changed, Duke University Hospital wanted and needed the patient population served by the Family Practice program. In 1972 Duke University Hospital was "already overcrowded with referral patients." In 1985, they were faced with attracting patients in an increasingly competitive health care market. An independent study emphasized that the Duke Family Medicine program was successfully competing in the marketplace. In fact, this successful competitor was just what Duke University Hospital needed to reach out to the community and rural physicians. Duke University Hospital needed Family Practice to keep up with the changing economic market.

But, "internal problems persisted." "Duke Medical Center Internal Medicine, Pediatrics, and Obstetrics/Gynecology house officers and attending physicians . . . had trouble understanding the orientation of Family Medicine house officers who had been carefully selected for their intellect, orientation to patients, and their families, and commitment to community needs."

"The Medical Center faced a clear choice." It could either maintain the program's isolation or it could fully accept Family Medicine at Duke. If it chose to maintain its isolation, the Family Medicine Program would continue to successfully compete for patients and refer them to Durham County Hospital where they could fully participate in their inpatient care. It could also fully accept Family Medicine at Duke allowing the Department to have admitting privileges at Duke University Hospital. Instead Duke chose to close the Family Practice Clinical Program and have their patients usurped by "newly expanded primary care divisions within the departments of Medicine, Pediatrics and Obstetrics."

These are the facts delineated by Dr. Sullivan. I have not added anything to his argument. I have deleted certain arguments which I do not consider valid. For example I do not consider the resignation of a single faculty member sufficient reason to close any department. In reviewing these facts, I reach a different conclusion than Dr. Sullivan. Family Medicine has never been accepted by Duke. They eliminated a source of patient care competition by eliminating a successful Family Practice Program. They did this instead of fully accepting Family Practice at Duke. In my mind, Dr. Sullivan's arguments damn rather than justify Duke's actions.

William A. Hensel, M.D.
Moses Cone Family Practice Center
Greensboro 27401-1020

Editor's Note

Dr. Sullivan served as Vice Chairman of Family Medicine at Duke from 1974 to 1980.

Each Person Can Make a Difference

I think our society has been discussing the wrong subject. Instead of debating the pros and cons of voluntary abortion, we should focus attention on coercive ways to limit our population. So I wrote the following Letter, titled *Abortions and Overpopulation*, which was published in the *Greenville Daily Reflector*, May 24, 1985:

To discuss abortions without mentioning overpopulation is like discussing fish without observing that fish live in water.

Abortions are not performed in operating rooms in the sky. They take place in societies which have limited capacities to raise, care for, and provide a satisfactory life for new offspring.

The Chinese do not promote abortions because they like to destroy Chinese fetuses. Instead, the Chinese are compassionate and intelligent. They realize their capacity to provide a satisfactory life for children is limited. Regardless of how intensively cultivated, their land can grow only so much food. Abortions are better than having infants and small children die of starvation and related diseases.

The United States already has evidence of severe overpopulation. We have a twin deficit of budget and trade. We live partly on borrowed resources, oil produced in other countries. We have a drug problem. We have a growing prison population, many of whom could not find a place in society. Some old people live in poverty and financial insecurity.

Fish do live in water. Abortions do take place in societies. To properly evaluate abortions, we should examine the entire picture, not just an isolated part of it.

Before I even saw the Letter published, I received a phone call. The lady claimed that, according to the geography department at East Carolina University, the USA was not overpopulated. I suggested they write a Letter opposing mine.

The big advantage of a democratic country is the ability to publicly express one's views. The opposition should have equal opportunity to be heard.

A second phone call, about an hour later, was from a woman who accused me of being a murderer and hung up.

The third call came a few minutes later. An older lady thanked me for writing the letter.

You may agree or disagree with my views on abortion and overpopulation. In either case, I hope you have an equal chance to express your opinion.

An organized group, of course, has more power than isolated individuals. But the point remains — so long as we have access to a free press, one person willing to write and answer the phone can make a difference.

Albert D. Warshauer, M.D.
1608 East Fifth Street
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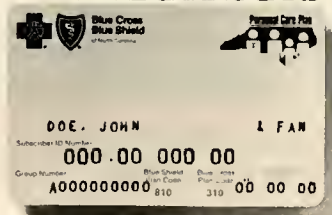
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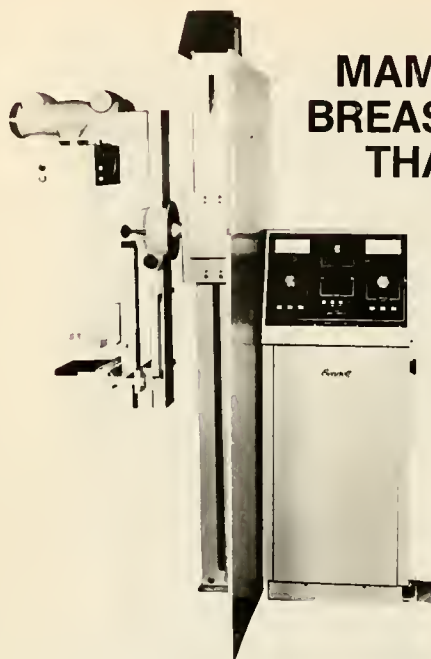
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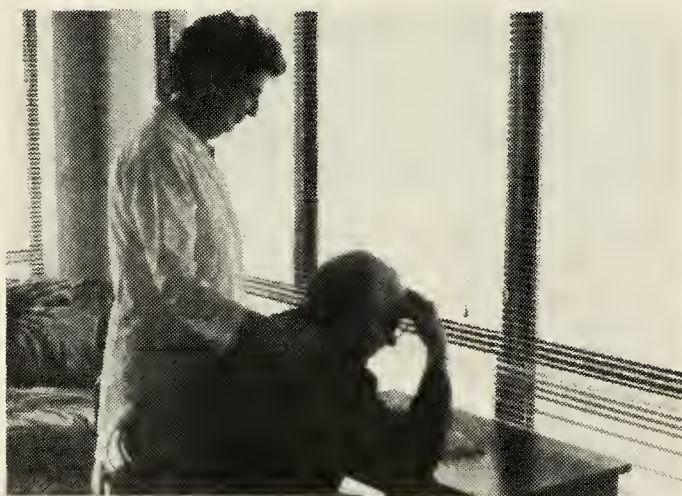
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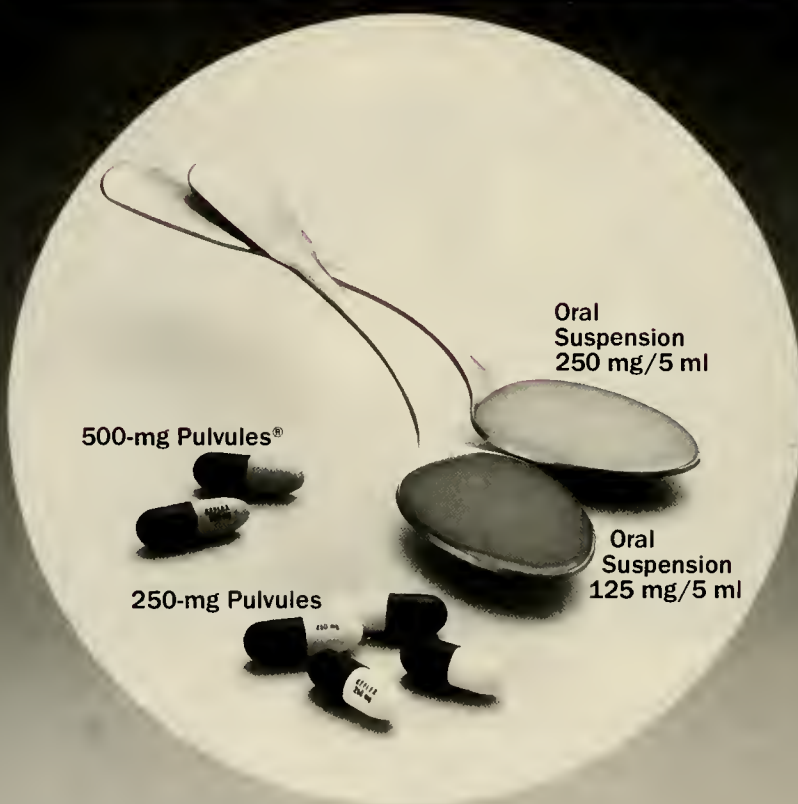
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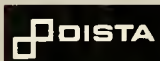
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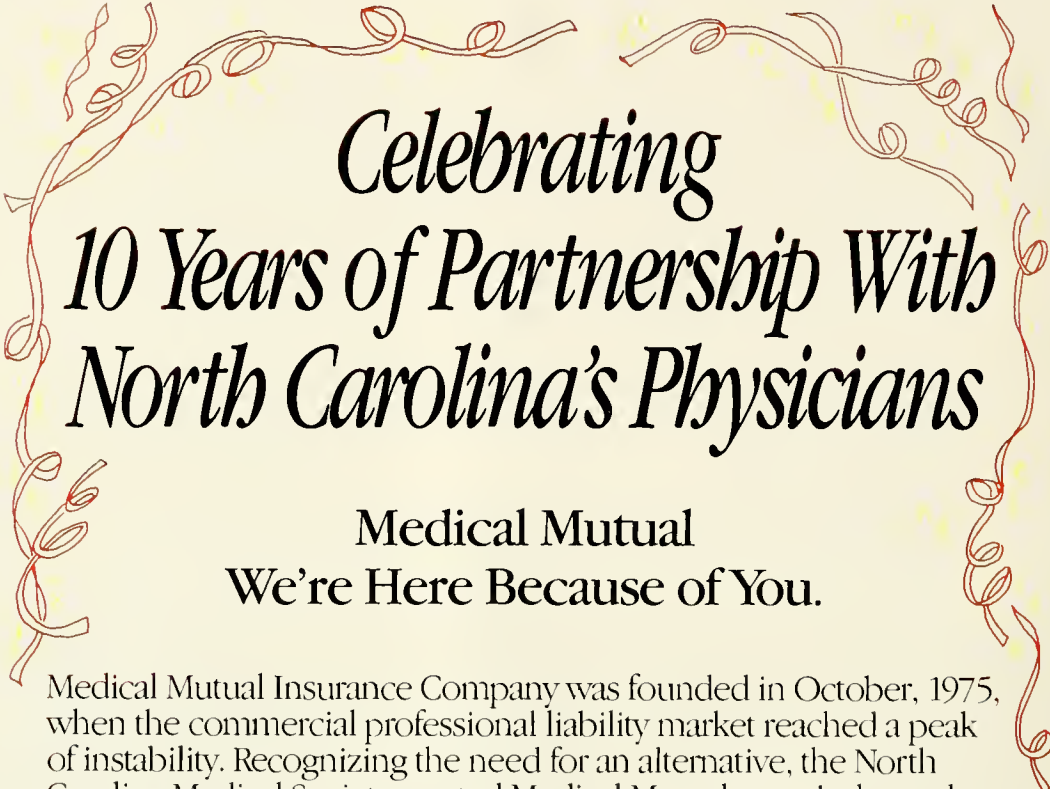
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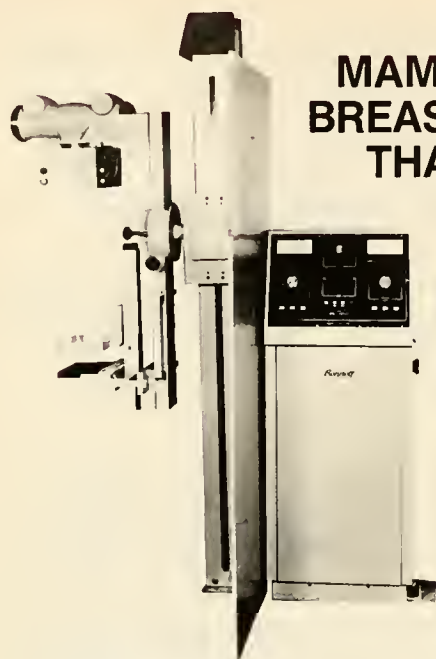
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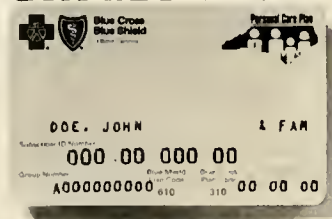
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Percutaneous Fine Needle Aspiration Biopsy of Deep Abdomen, Retroperitoneum, Soft Tissue and Bone Under Radiologic Guidance

Keith V. Nance, Irwin S. Johnsrude, M.D., Michael B. Kodroff, M.D. and Jan F. Silverman, M.D.

• *Fine needle aspiration is a safe, quick and reliable biopsy method.*

APPROXIMATELY ninety fine needle aspiration biopsies of deep abdomen, retroperitoneum, soft tissue, and bone have been performed at East Carolina University School of Medicine/Pitt County Memorial Hospital over the past five years, with 62 biopsies occurring during 1984. The purpose of this paper is to report our experience (1984) and to encourage the use of percutaneous fine needle aspiration biopsy of deep abdomen, retroperitoneum, soft tissue, and bone as a diagnostic procedure.

Materials and Methods

The procedure is similar to methods previously described.¹⁻⁴ Before the study, informed consent is obtained following discussion of the possible complications of the procedure. Mild sedation is usually given. Old and recent films, particularly ultrasound and computed tomography (CT) studies are reviewed.

Ultrasound is generally the preferred radiologic guidance method. The procedure has lower cost, greater speed and flexibility, and requires no ionizing radiation. Special transducers used for guiding the needle add to the simplicity and accuracy of this approach. Computed tomography has the advantages of reproducible excellent resolution and superiority over ultrasound in localizing small, deep lesions and visualizing needle placement in some solid masses. CT is now delegated to a secondary guidance method due to its relatively high cost, significant radiation exposure, and slower, more cumbersome technique.⁴ The advantages and disadvantages of ultrasound and CT are detailed in table 1. Fluoroscopic guidance was used in this study for aspiration of bony lesions. Supplemental use of CT or ultrasound occasionally aided in determining the depth to which the needle was inserted and the angle of entry for bony lesions.

An entry site is selected that will attain the shortest distance between skin and the lesion to be aspirated while avoiding other major structures. The depth needed for the needle's penetration is determined and this measurement is indicated on the biopsy needle. The skin surface is cleansed with Betadine, local anesthesia is injected into the skin,

Table 1

Advantages and Disadvantages of Radiologic Techniques

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- No radiation
- See mass as needle enters it (93% accuracy)
- Needle trajectory on the screen
- Angle calculation unnecessary
- More expeditious (and less costly) than CT
- Can be done outside Radiology Department
- Operator dependent
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- Documents needle position despite:
 - Gas
 - Obesity
 - Dressings
 - Small size lesion
- Proximity to vital structure (pleural, vessels)
- Aspiration and drainage of fluid collections
- Time consuming, radiation exposure, expensive

followed by a small skin stab wound. A 22-gauge (0.6 mm) biopsy needle is then guided into the lesion. As the needle tip enters the lesion the radiologist often can detect a change in the consistency of the tissue. With real time ultrasound the needle tip can be visualized as it enters the lesion. When the needle point has been placed in the desired position, the stylet is removed, a 20 cc syringe is attached, and the needle is moved to and fro with suction applied. The vacuum is released before the removal of the needle, and both the needle and syringe are withdrawn. The syringe is then detached from the needle, filled with air, and reattached and the needle contents are expressed onto the center of the sterile frosted end-glass slide. An assistant usually helps prepare the slides.

The smear technique consists of compressing the material on the slide with another slide and spreading this material over a small area similar to the preparation used in bone marrow aspirate. The majority of the smears are immediately wet fixed in 95% alcohol while a few others are air dried. One or more of the air dried smears are immediately delivered to the pathologist who performs a rapid modified Wright stain (Diff-Quik). The staining pro-

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Table 2
Indications

Establish diagnosis of a clinically or radiologically detected mass:

Malignant — Primary — stage

Inoperable patient

Recurrent or metastatic

Determine operability and therapy plan:

Surgery

Radiotherapy

Chemotherapy

Benign — Evacuate: Cyst

Abscess (culture)

Granulomas, i.e., TB, fungus

Granulation tissue

cess takes approximately 20 seconds and slides are examined wet. The pathologist will then assess the adequacy of the sample and whether additional aspirations need to be performed. The pathologist usually gives his preliminary diagnosis in person in the radiology department procedure room where he can review the x-rays and directly confer with the radiologist. The immediate "quick read" procedure can easily be performed within five minutes. At this time, any additional material can be allocated for further studies including microbiologic examination, cell block and electron microscopy. The remaining 95% alcohol fixed slides are examined within one or two hours and the final diagnosis is rendered. The pathologist contacts both the radiologist and the patient's physician. Following the biopsy procedure, the patient is observed for any signs of complications including bleeding, and vital signs are recorded. Indications for fine needle aspiration biopsy at ECU/PCMH are outlined in table 2.

Results

Fifty-four patients underwent sixty-two biopsies at Pitt County Memorial Hospital in 1984. The age range was 23 to 88 years old with a mean age of 62. There were 26 men and 28 women. Thirty-one specific malignant diagnoses were rendered. There were thirty-one negative cases. Five of the negative cases were later shown to be malignant by histologic examination for a false negative rate of 14%. There were no false positive diagnoses. The sensitivity of

the procedure (true positive) was 86% and specificity (true negative) was 100%. In fifteen negative FNA biopsies (48%), a specific non-malignant diagnosis was rendered. There were no complications reported following any of the fine needle aspiration biopsies presented in this study.

Discussion

The main value of fine needle aspiration biopsy of deep abdomen, retroperitoneum, soft tissue, and bone is in the diagnosis of malignancy. An accuracy rate of 80 to 90% is reported in most series which is exemplified by our 1984 experience, where a diagnosis of malignancy was made with a sensitivity of 86% and a specificity of 100% for the procedure.¹⁻¹³ In addition, the procedure can serve as an accurate means of diagnosing malignant lymphoma as evidenced by our experience with five cases in this study. Fine needle aspiration biopsy is particularly useful in cases where there is a question of recurrence of a previously diagnosed malignancy. Our results also support the role of FNA in diagnosing non-malignant conditions. Forty-eight percent of our negative cases had a specific non-malignant diagnosis.

Continued refinement of radiologic guidance techniques, particularly the development of special aspiration transducers for ultrasound which are capable of simultaneously guiding needle placement and imaging regional anatomy, should lead to continued improvement in accuracy of this procedure.

Our experience in this study re-emphasizes that fine needle aspiration biopsy of deep abdomen, retroperitoneum, soft tissue, and bone is a safe and quick means of diagnosing both benign and malignant lesions and is both less expensive and less invasive than other currently available modalities. The procedure causes little discomfort to the patient and can be performed in both out-patient and hospital settings. FNA biopsy of deep, non-palpable lesions utilizing sophisticated radiologic technique offers an accurate means of diagnosis which minimizes delay in treatment. The procedure works best when the expertise of the cytopathologist, radiologist, and primary physician are combined in a team effort.

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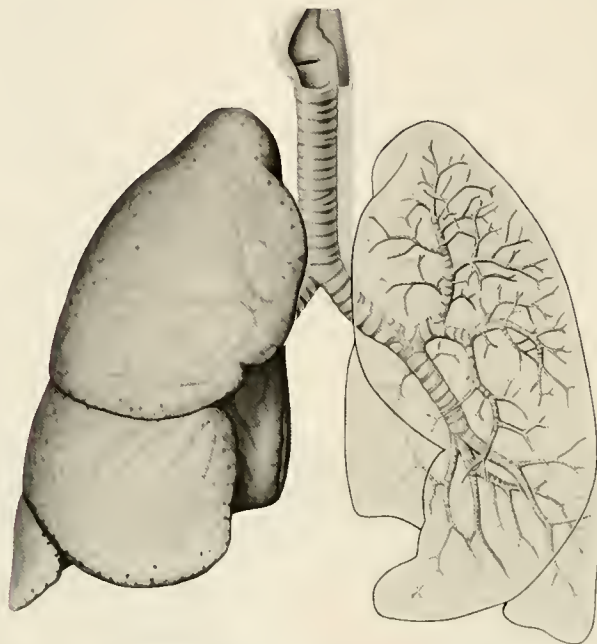
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Indications and Usage Cecilor[®] (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (Diplococcus pneumoniae), *Haemophilus influenzae* and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cecilor.

Contraindication Cecilor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cecilor, should be administered cautiously to any patient who has demonstrated some form of allergy particularly to drugs.

Pseudomonas colitis has been reported with virtually all broad spectrum antibiotics (including macrolides, semisynthetic penicillins and cephalosporins); therefore it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life threatening.

Treatment with broad spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, manage-

ment should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out.

Precautions General Precautions—If an allergic reaction to Cecilor[®] (cefaclor, Lilly) occurs, the drug should be discontinued and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids. Prolonged use of Cecilor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures, when mitoglobulin tests are performed on the major side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Cecilor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cecilor a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest[®] tablets but not with Tes-Tape[®] (Glucose Enzymatic Test Strip USP, Lilly).

Broad spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in terrets given three times the maximum

human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Cecilor[®] (cefaclor, Lilly). There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers—Small amounts of Cecilor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.18, 0.20, 0.21, and 0.16 mcg/ml at two, three, four and five hours respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Cecilor is administered to a nursing woman.

Use in Children—Safety and effectiveness of this product for use in infants less than one month of age have not been established.

Adverse Reactions Adverse effects considered related to therapy with Cecilor are uncommon and are listed below. Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70).

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely.

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cecilor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported.

Antibacterials and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy. Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782R]

Note Cecilor[®] (cefaclor, Lilly) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Looking at Renal Failure Upside Down

Jeremy Sugarman, Gail Belinsky, M.D. and Francis A. Neelon, M.D.

PROGRESSIVE renal insufficiency has a way of humbling the average physician. Though it is not usually difficult to diagnose "renal insufficiency" or "nephrotic syndrome," it can be extremely difficult (and sometimes impossible) to ascertain their underlying causes. Hence, progressive renal insufficiency provides a diagnostic challenge, often answered by frustration. Hippocratic physicians would not have joined us in this frustration. "The Hippocratic physician was primarily interested, not in diagnosis, but in prognosis and treatment. His first interest was not in a disease manifested in the patient, but in the patient himself. He was concerned with the body as a whole rather than with the lesion of the parts. Here, he partly transformed a shortcoming into a virtue. His knowledge was far too limited to practice diagnostics and specific treatments successfully."¹

When dealing with a process as complicated as progressive renal failure it would be helpful to have an easier means of monitoring the course of the illness and the response to various treatments than the calculation of creatinine clearance with its cumbersome necessity of repeatedly collected 24-hour urine specimens which demand diligence, compliance and sometimes extraordinary gymnastics. The following case history illustrates some of the problems encountered in caring for a patient with the nephrotic syndrome and progressive renal failure while illustrating a simple means we used to follow her course:

A twenty-six-year-old black woman felt well until early April 1985 when she noted the gradual onset of swelling in her legs and abdomen over the course of about one week. During this time period, she had occasional nausea, vomiting, and loose stools. On April 12, 1985, she came to the emergency room where her serum creatinine was found to be 1.6 mg/dl (normal value 0.7-1.4) and BUN 18 mg/dl (7-21). A routine urinalysis showed pH, 7; specific gravity, 1.020; 4+ protein; 1-5 WBC; 3+ bacteria; 0-1 WBC casts; 0-2 hyaline and granular casts per high power field. A urine specimen sent for culture was lost. Because of the possibility of urinary tract infection, she was given trimethoprim-sulfamethoxazole twice daily.

On April 20, 1985, she returned complaining of diffuse abdominal pain. She admitted using acetaminophen for headaches approximately twice a week, but no other analgesics. She denied any recent illnesses or infections, sore throat, exposure to tuberculosis, recent or present use of medications or illicit drugs, exposure to toxins, diabetes, renal problems, recent pregnancy, weight loss, joint pain, or skin rash. Family history was negative for similar ill-

nesses or sickle cell disease. Physical exam revealed a normotensive young woman in no acute distress, with ascites, moderate facial edema, 3 mm pitting pretibial edema, and a grade II/VI non-radiating systolic ejection murmur heard best at the apex. The remainder of her exam was normal. A urine specimen obtained by catheterization showed pH, 7; specific gravity, 1.020; 3+ protein; 1 WBC; 0 RBC; 1+ ketones; 3-4 hyaline casts per high power field. A urine culture showed no growth. Her serum creatinine had increased to 1.8 mg/dl and BUN was 23 mg/dl.

On April 23, two days before admission, her serum cholesterol was 390 mg/dl (normal 120-250); total protein, 4.3 g/dl (6.0-8.0); albumin, 1.9 g/dl (3.5-5.0); serum creatinine, 1.9; and BUN, 30. We worried about lupus nephritis but fluorescent anti-nuclear antibody assay was normal, Westergren sedimentation rate was not elevated, and serum complement levels (CH50) were normal. A chest X-ray was normal. Importantly, a 24-hour urine collection amounted to only 266 ml but contained 9.0 g of protein (normal is less than 0.01 g) and 866 mg of creatinine (the predicted normal value for this patient is 700-1300 mg/dl). The calculated creatinine clearance was 32 ml/min. The patient was scheduled for admission for renal biopsy.

Clearly, the patient had the nephrotic syndrome (NS): "the clinical expression of any glomerular lesion that produces massive proteinuria (more than 3 grams of protein excreted in the urine per day)."² Typically, NS is characterized by heavy proteinuria, hypoalbuminemia, hyperlipidemia and edema.³ In addition, the patient had evidence of renal functional impairment reflected by her increasing serum creatinine. She was hospitalized on April 25, and she underwent diagnostic renal biopsy the following day which revealed moderate mesangial proliferation.

Table 1
Approaching the Patient with Nephrotic Syndrome

Secondary Causes*	Nephrotic Syndrome Primary Causes†
infection	minimal change disease
multisystemic disease	mesangial proliferation
heredofamilial disorders	focal glomerulosclerosis
neoplasia	membranous glomerulopathies
toxins	membranoproliferative glomerulonephritis
	chronic nonspecific glomerulonephritis

* See table 2.

† Also known as Idiopathic Nephrotic Syndrome

From the Department of Medicine, Duke University Medical Center, Durham 27710.

The causes of NS are myriad. When evaluating a patient with NS (table 1) it is helpful to try to distinguish whether it is "secondary" to another disease process, or "primary" (that is, idiopathic). Sources that lead to secondary nephrotic syndrome should be ruled out first and include post-infectious sequelae, multisystemic diseases such as diabetes or lupus; hereditary diseases like sickle cell anemia; neoplasms; and toxins such as gold or penicillamine. A partial list of specific causes of secondary NS is found in table 2.⁴

As in the patient being discussed, if there is no evidence for secondary NS in an adult, renal biopsy can be performed to classify the type of primary NS based on histologic findings. Primary NS in the adult results from minimal change disease (15-20% of cases), mesangial proliferation (5-10%), focal glomerular sclerosis (10%), idiopathic membranous glomerulopathy (30-40%), membranoproliferative glomerulonephritis (less than 10%) or chronic non-specific glomerulonephritis (5-10%). In many instances a

Table 2
Some of the Secondary Causes of the Nephrotic Syndrome⁴

Infections

Poststreptococcal glomerulonephritis
Endocarditis
Syphilis
Tuberculosis
Malaria
Hepatitis B
Cytomegalovirus
Infectious mononucleosis
Herpes zoster

Multisystemic disease

Amyloid
Diabetes mellitus
Goodpasture syndrome
Myxedema
Rheumatoid arthritis
Sarcoidosis
Systemic lupus erythematosus

Hereditary disorders

Alport syndrome
Nail-patella syndrome
Sickle cell disease

Neoplasia

Solid tumors
Hodgkin's disease
Chronic lymphatic leukemia
Multiple myeloma

Toxins

Gold
Heroin, street
Mercury
Probenicid
Tolbutamide
Trimethadione
Penicillamine

Others

Allergens (bee, snake, poison ivy/oak)
Accelerated hypertension
Congestive heart failure
Obesity
Pregnancy
Transplant rejection

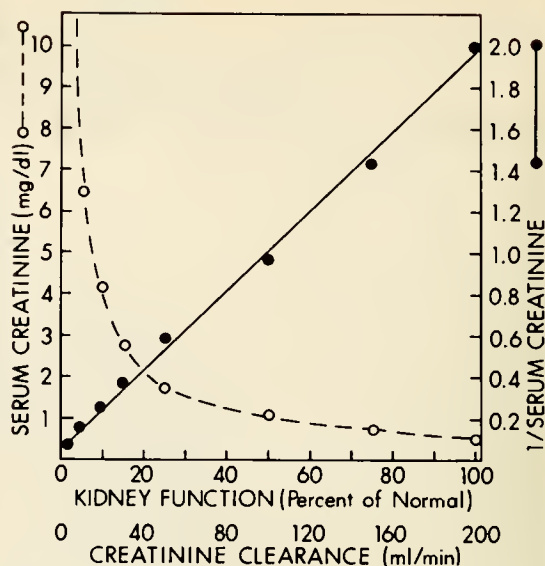


Figure 1. The relation between serum creatinine (broken line) and kidney function. As kidney function declines, the serum creatinine rises in a nonlinear fashion. On the other hand, the inverse of the serum creatinine (solid line) shows a direct and linear relation to kidney function, declining by half its value each time the kidney function declines by half. (Data derived from Doolan, Alpen and Thail.⁶)

histologic diagnosis can aid in both determining the patient's prognosis and establishing the most effective treatment plan; this information can not be reliably predicted from the patient's urine sediment or clinical course. A histologic diagnosis suggests which patients will respond to glucocorticoids. For example, glucocorticoids tend to be palliative in minimal change disease or membranous glomerulonephritis, but seem to have little beneficial effect in focal glomerular sclerosis or membranoproliferative glomerulonephritis.³

It was clear that the patient's renal function was declining rapidly, but the *rate* of the decline was not directly obvious from the measurement of serum creatinine alone. It is helpful to remember that serum creatinine is curvilinearly related to renal function (figure 1) as measured by either glomerular filtration rate or creatinine clearance.^{5, 6} In fact, the curve shown is a rectangular hyperbola following the equation:

$$\text{Kidney Function} = 1/\text{Serum Creatinine}$$

Thus, the inverse of the serum creatinine (1/Scr) provides a *direct* estimate of kidney function (figure 1). Although the precise value of glomerular function in any given patient requires calculation of the creatinine clearance (which in turn requires collection of a timed urine specimen), 1/Scr can be used to *follow* patients with changing glomerular filtration rates.⁶

In order to get a picture of our patient's renal function, we plotted the inverse of her serum creatinines against time (figure 2) in the manner suggested by Mitch et al.⁷ In a

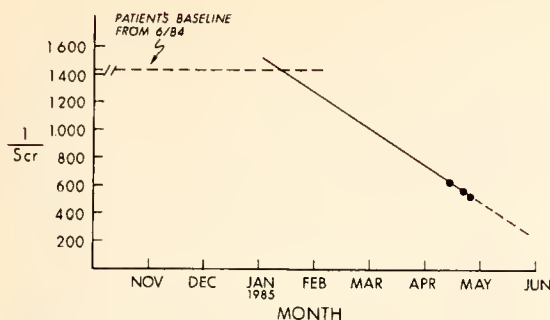


Figure 2. Changes in the patient's inverse serum creatinine ($1/Scr$) show a rapid and linear decrease with time. Extrapolation of the line backwards allows us to estimate that her disease began sometime in January; extrapolation forward predicts that, in the absence of treatment, the serum creatinine would have been 10 mg/dl by July.

study of 34 patients with chronic renal insufficiency caused by various diseases, these authors showed "that in most cases reciprocal serum-creatinine declines linearly with time as renal failure progresses."⁷ In addition, "analysis of this relation in individual patients gives an estimate of the [rate of] progression of the disease, may help to determine the effects of therapy, and could be used to predict when dialysis will become necessary."⁷ We were fortunate to have available a serum creatinine value of 0.7 mg/dl obtained when the patient underwent an elective septoplasty in June of 1984, and we assumed that to be the patient's

baseline value. Figure 2 shows a striking linear decline in renal function. We extrapolated the line backwards to get an indication of when the process causing the nephrotic syndrome might have begun; the extrapolated line intercepts the patient's baseline sometimes in early January, about three months before the onset of her symptoms. We carefully questioned the patient about illnesses and medications during early January. Unfortunately, she could not provide any additional information. Nonetheless, the graph as well as urinary protein excretion will be useful tools with which to follow this patient's response to treatment.

Progressive renal failure presents a challenge in diagnosis and treatment. By plotting the inverse of serial serum creatinine values versus time, the clinician can monitor the progression of the disease and the impact of any treatments.

References

1. Ackernecht EH. A short history of medicine, revised ed. Baltimore: Johns Hopkins University Press, 1982, pp. 60-1.
2. Fishman MC. Medicine. Philadelphia: J. B. Lippincott, 1981, pp. 167-9.
3. Petersdorf, RG et al. Harrison's principles of internal medicine, 10th ed. New York: McGraw-Hill Book Company, 1983.
4. Earley LE, Gottschalk CW, eds. Strauss and Welt's diseases of the kidney, 3rd ed. Boston: Little, Brown and Company, 1979.
5. Price SA, Wilson LMcC. Pathophysiology, 2nd ed. New York: McGraw-Hill, 1982, p. 527.
6. Doolan PD, Alpen EL, Thall GB. A clinical appraisal of the plasma concentration and endogenous clearance of creatinine. Am J Med 1962;32:65.
7. Mitch WE et al. A simple method of estimating progression of chronic renal failure. Lancet 1976;II:1326.

Acknowledgment

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Purpura Fulminans Associated with *Haemophilus Influenzae* Type B Infection

John Peter Santamaria, M.D., Shannon Kenney, M.D. and Alan D. Stiles, M.D.

- Three fatal cases demonstrate the importance of prevention. Guidelines for vaccination of young children are given.

PURPURA fulminans is a disorder characterized by progressive, symmetrical purpuric lesions of the skin in addition to laboratory evidence of disseminated intravascular coagulation (DIC).¹ This disorder has been associated with bacterial diseases caused by streptococcus, meningococcus, and *Branhamella catarrhalis*, as well as the exanthematous viral illnesses of varicella and measles.²⁻⁵ *Haemophilus influenzae* infections have been described with petechiae or reddish-purple cellulitis but not with the pathognomonic features of purpura fulminans.

Since the presence of this serious complication may suggest other etiologic associations and inappropriately narrow treatment regimens, the purpose of this paper is to present three illustrative cases treated on our service in a six-month period. The deaths of all three patients attest to the severity of this problem. The need for adequate preventive measures and rapid and intensive therapy is clear.

Case 1

DE, a 9-month-old white boy, presented at another hospital obtunded, convulsing, and cyanotic. Initial physical examination was remarkable for hypotension, fever, unresponsiveness, a tense fontanelle and right otitis media. A lumbar puncture revealed purulent cerebrospinal fluid (CSF) which later grew *Haemophilus influenzae* type b, sensitive to ampicillin. His coagulation profile on presentation included the following: Prothrombin time (PT), 21 seconds (control, 11 seconds); partial thromboplastin time (PTT), 108 seconds (control, 32 seconds); fibrinogen 170 mg/dl (normal, 170-420 mg/dl); and platelet count 40,000/ml.

The patient was treated with intravenous ampicillin and chloramphenicol, fresh frozen plasma, platelets, and vitamin K. Within several hours he developed marked purpura of all fingers and toes with no palpable pulses in the distal extremities. Repeat coagulation values were PTT of over 200 seconds (control, 56 seconds) and thrombin clotting time (TCT) of 34 seconds (control, 12.1 seconds). A heparin infusion (50 units/kg loading dose followed by 15 units/kg/hr) was added to his therapy with no clinical improvement. The heparin was discontinued when the patient developed massive hematemeses. He died three days after his

initial presentation with uncontrollable increase in intracranial pressure and hypotension.

Autopsy revealed purulent leptomeningitis, multiple hemorrhagic infarcts of the brain with cerebral herniation, bilateral adrenal cortical hemorrhage, and multiple hemorrhagic foci in the lungs, bladder and stomach. There was purpura grossly of the hands, feet and calves. Microscopic exam of the skin from the involved regions showed marked vascular congestion and occlusion of the small capillaries with hyaline thrombi.

Case 2

SC was a previously well, 5½-month-old white girl admitted to a local hospital with meningitis which was later shown by CSF culture to be due to *Haemophilus influenzae* type b, sensitive to ampicillin. She was initially treated with ampicillin, but developed generalized seizure activity and acidosis on the day of admission and was transferred to the North Carolina Memorial Hospital. Physical exam was notable for generalized seizures, bulging, tense fontanelle, and diffuse purpuric lesions over the distal extremities symmetrically. Initial laboratory tests included the following: PT, 17.1 seconds (control, 11.4 seconds); PTT, 123.5 (control, 54.8 seconds); TCT, 13.5 seconds (control, 11.9 seconds); fibrinogen 28.1 mg/dl; Factor VIII 35% of normal, and a platelet count of 21,000/ml. The child was maintained on mechanical ventilation and measures to control intracranial pressure were instituted.

On the second hospital day purpura progressed despite vitamin K, multiple platelet and fresh frozen plasma infusions, and laboratory evidence of coagulation improvement with PT of 13.8 seconds (control, 10.7 seconds). Heparin therapy was begun (50 units/kg loading dose, then 15-20 units/kg/hr infusion) with subsequent improvement in distal perfusion and some regression of purpura. The patient's activated PTT became equal to control, but the platelet count could not be maintained greater than 20,000/ml. On the fourth hospital day a massive pneumothorax occurred and the child died. Autopsy was denied.

Case 3

PP, a 13-month-old white boy, was admitted to a local hospital with a diagnosis of meningitis. His blood and CSF cultures grew *Haemophilus influenzae* type b, sensitive to ampicillin. Laboratory tests on admission revealed PT, 16

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seconds (control, 11 seconds) and PTT, 71 seconds (control, 34 seconds). Treatment included ampicillin, chloramphenicol, whole blood, and fresh frozen plasma. There was transient clinical improvement, then deterioration including seizure activity and cardiopulmonary arrest. Coagulation indices were essentially unchanged. After stabilization he was transferred to the North Carolina Memorial Hospital.

Admission physical exam was notable for mottled skin with symmetrically distributed petechiae on the trunk and extremities, ecchymoses on both ears, and cool extremities. Neurological exam revealed sluggishly reactive pupils and bilateral papilledema. At that time laboratory values included PT of 18.9 seconds (control, 12.7 seconds), PTT of 85.4 seconds (control, 54.9 seconds) and platelet count of 7,000/ml.

Attempts were made to control the progression of purpura with platelets, fresh frozen plasma and a constant infusion of heparin (50 units/kg loading dose, then 15-20 units/kg/hr). Throughout the first hospital day there was no extension of purpura and some healing of older lesions was seen. Coagulation studies were also improved: PT 12.7 seconds (control, 11.9 seconds) and PTT 58.1 seconds (control, 34.8 seconds). On the second hospital day his ICP became markedly elevated and neurologic status deteriorated. On the third hospital day he suffered a cardiac arrest and died. No autopsy was performed.

Discussion

Each case had clinical and laboratory evidence of purpura fulminans associated with *Haemophilus influenzae* type b, ampicillin-sensitive meningitis. In two children the coagulopathy was satisfactorily controlled with supportive measures for disseminated intravascular coagulation and continuous heparin infusion. Since the coagulopathy could not be implicated as the immediate cause of death in any of the patients, these cases support the impression that heparin is useful for control of DIC in purpura fulminans although its benefit for DIC in general remains controversial.^{6, 7}

The clinical course in these children was more rapidly progressive than is usually seen with this organism. It is important that the practitioner faced with a case of childhood meningitis associated with purpura not assume that *Neisseria meningitidis* is the etiologic agent. Broad spectrum antibiotic therapy, including coverage for *Haemophilus influenzae* type b as well as the more common etiologic agent *Neisseria meningitidis*, should be instituted immediately. Penicillin or ampicillin, in addition to chloramphenicol, would be an appropriate choice to cover increasing numbers of ampicillin-resistant *Haemophilus influenzae*. Awareness of the association between *Haemophilus influenzae* type b infections and purpura fulminans may allow earlier recognition of this complication and institution of heparin therapy. This may aid in the control of the coagulopathy as well as the prevention of long-term deformation associated with vascular occlusion in the extremities and facial appendages of survivors.

The failure of known intensive care therapies to alter the clinical outcome of these three patients is sobering. "Pre-

Table 1
CDC Recommendations for Vaccination

	< 18 Months	18-24 Months	24 Months	> 24 Months
Vaccination	No	Unclear ¹	Yes	Unclear ³
Revaccination	No	Unclear ²	No	No

Adapted from Morbidity and Mortality Weekly Report (Centers for Disease Control), 34(15), April 19, 1985.

¹ May be considered, especially in high risk groups such as children with sickle cell disease, asplenia, malignancies, other immunosuppressive diseases, or those in day care.

² Second dose of vaccine within 18 months after first dose may ensure protection.

³ May be considered, based on age-related incidence of disease and co-existence of other high risk state.

vention first" is a medical doctrine nowhere more applicable than here.

Recently a vaccine of the purified capsular polysaccharide of *Haemophilus influenzae* type b (Hib) has been licensed in the United States. The antibody response induced is inversely proportional to the age of the small child. Although there are remaining questions regarding the precise protective level of antibody, a Finnish field trial correlated levels of capsular antibody greater than 1 µg/ml in three-week postimmunization serum samples with clinical protection for a minimum of 1½ years. After a single vaccination, this level was achieved in 90% of 24-35 month-old children and 75% of 18-23 month-old children.⁸ Combining these data with age-related incidence of invasive Hib disease has led to the current Centers for Disease Control recommendations (table 1).⁹

Concurrent administration of Hib and DPT vaccines at separate sites can be given without effect on the immune response to the individual antigens or adverse reactions beyond those experienced with separate administration. Side effects have not been of significant consequence to alter these recommendations.

Acknowledgment

We wish to express our appreciation to Dr. Campbell McMillan and Dr. Wallace Clyde for their advice concerning this report.

References

1. Antley RM, McMillan CW. Sequential coagulation studies in purpura fulminans. *N Engl J Med* 1967;276:1287.
2. Hjort PF, Rappaport SI, Jorgensen I. Purpura fulminans — a report of a case successfully treated with heparin and hydrocortisone. Review of 50 cases from the literature. *Scand J Haematol* 1964;1:169.
3. Bouhasin JP. Purpura fulminans. *Pediatrics* 1964;34:265.
4. Spicer TE, Rau J. Purpura fulminans. *Am J Med* 1976;61:566.
5. Hodge SJ. Purpura fulminans. *Cutis* 1978;21:830.
6. Corrigan JJ. Heparin should be used cautiously and selectively. *Controversies in Internal Medicine*. Philadelphia: WB Saunders, 1974.
7. Corrigan JJ. Heparin therapy in bacterial septicemia. *J Ped* 1977;91:695.
8. Kayhty H, Peltola H, Karanko V, Makela PH. The protective level of serum antibodies to the capsular polysaccharide of *Haemophilus influenzae* type b. *J Infect Dis* 1983;147:1100.
9. Centers for Disease Control. Morbidity and Mortality Weekly Report, 34:15, April 19, 1985.

Play It Again, Voltaire — Aconite (Monkshood) Poisoning

Ronald B. Mack, M.D.

SURELY you remember good old Voltaire. What a stand-up guy he was!! This very provocative French author and philosopher was a hero of the Enlightenment and in my opinion was one of the really good things about that period of history. His writing was prodigious but many people remember him best for his famous pronouncement: "I may disagree with what you say, but I will fight to my death your right to say it." I thought of Voltaire's statement recently when an unsolicited journal came to me in the mail and I began to experience intellectual dysrhythmia as a result. No, I'm not talking about the "journals" I receive in brown paper wrappers — I like those — the interviews are simply marvelous.

The name of the journal that caused me to dissemble is *American Homeopathy*, Vol 2, Number 3, March 1985, published by the United States Homeopathic Association. On page 4 there is an article entitled "Comparison of homeopathic medicines for treating tonsillitis." The article discusses this disease and then states "If the condition is ascertained very quickly, a dose or two of Aconite has an excellent chance of aborting tonsillitis." When I read the word *aconite* I stopped reading for a moment and gulped. Aconite was known to the ancient Greeks as an excellent poison. Medea, of Greek mythology fame, was a very tough lady. She was deserted by her husband, Jason (of the Golden Fleece); he found a younger woman to dally with (Excuse me, dally? Is that a euphemism for _____? Never mind!!). Medea was very angry and murdered all of her children by Jason except one. She then married Aegeus, King of Athens. Aegeus had a son, Theseus, whom Medea tried to kill with aconite but she failed. William Shakespeare knew plenty about this potentially deadly plant. In *Henry IV*, part 2 King Henry himself says "... though it does work as strong as aconitum. . . ." In this passage (Act IV, Scene IV) the King speaks to his sons concerning the strength of the love between brothers and says it must be so strong as to resist the force of a poison as strong as aconite or of gunpowder. This plant has been considered so poisonous and powerful throughout history that it was used extensively to coat arrows and daggers. In *Hamlet*, Laertes says "And for that purpose I'll anoint my sword. I bought an unction of a mountebank so mortal that but dip a knife in it, where it draws blood, no cataplasm so rare . . . can save the thing from death that is but scratched

withal." Hamlet dies within "half an hour" after being poisoned thus and laments before dying, "Oh, I die, Horatio, the potent poison quite o'ercrows my spirit."

Just what is this plant that has been so popular for millennia!! Is it still around? You bet your bippy it is!! Aconite has many synonyms, e.g., it is probably better known these days as *Monkshood* but it is AKA Friar's Cap, Helmet Flower, Soldier's Cap and the ever popular Wolfsbane. There are 100 species of this plant that are native to the north temperate zone and they grow in cultivated flower gardens and in the wild throughout most of the United States and Canada except in the so-called "deep South." The Monkshoods are perennial plants, mostly erect, sometimes branched, about two to six feet in height. The characteristic upper part of the plant is like a hood (no, not like the guys who grow up in my old neighborhood, but like a cap or cowl) reflected in the various aliases that this flora enjoys — Friars Cap, Soldier's Cap, etc. The flowers of most of the species are blue but can be pink, white or flesh toned. The seed pods contain numerous small seeds.

Probably the entire plant should be considered poisonous. The leaves, roots and seeds are particularly troublesome if ingested (or if you happened to be hit by an arrow or stabbed with a dagger immersed in the plant's contents) because they contain *aconitine* and other poisonous alkaloids such as delphinine and ajacine. These chemicals are polycyclic diterpenoid alkaloids (of course they are!! I knew that!!). Aconitine has been used experimentally by medical researchers to disrupt the normal heartbeat so that new drugs that affect the heart can be evaluated.

Gosh, I wonder what happens when you receive some unwanted aconite!! The alkaloids are alleged to be so toxic that merely picking the flowers of this plant can cause prickling and/or numbness of the fingers. Poisoning does occur, by ingestion usually — accidentally, of course — or by eating the leaves as salad greens or by having it prescribed by uh, uh, uh practitioners. The symptoms of this plant poisoning develop quite rapidly, usually within 30 minutes of ingestion, and are experienced initially as a numbness or burning feeling of the entire oral mucosa, lips and throat which may ultimately involve the entire dermal surface including the extremities. Speech, of course, may be difficult and this is often followed by salivation, nausea and vomiting, abdominal pain that is crampy in nature and diarrhea. Gastrointestinal distress seems to be the most common denominator in a typical plant poisoning regard-

From the Department of Pediatrics, Bowman Gray School of Medicine, Winston-Salem 27103.

less of species. Within limits this is not necessarily a terribly destructive adverse effect as it helps to rid the body of the plant parts and any unabsorbed toxins. Visual blurring can develop with yellow-green vision (as in oleander, fox glove, star-of-bethlehem poisonings) with *mydriasis*. At this point the patient is dizzy, weak, uncoordinated and, if able to speak, complaining of paresthesias, muscle cramps, and generalized body pain. The worst is yet to come!! Monkshood alkaloids first stimulate then depress both central and peripheral sensory nerves. The effects on the heart are similar to quinidine. In the worst scenario, cardiac rhythm disturbances can lead to cardiac or respiratory failure in as little as 5 minutes or as long as four days. The lethal dose is approximately 5 mg of the alkaloid or a teaspoonful of the root; needless to say it is hard to standardize this substance.

So, you ask, just who are these people — the homeopaths — who, within a few years of the 21st Century, recommend this substance, allegedly, for acute tonsillitis as well as decreasing "heart action," decreasing elevated blood pressure, treating neuralgias, antipyresis, reducing rheumatic pains, etc. Our story goes back to the father of homeopathy, the German physician and theorist, Samuel C. Hahnemann (1755-1843) who was apparently rebelling against the so-called "orthodox" medical system of the day which often consisted of what came to be known as Heroic Medicine, e.g., bleeding, purging, cupping, blistering and sweating (wouldn't Galen have been proud that his teachings from the First Century A.D. were still popular in the 18th and 19th Centuries?). Hahnemann, who had conventional medical training, formulated at the end of the 18th Century the fundamental law of homeopathy: *similas, similibus, curantur* ("like may be cured by

like").¹ In an explanatory brochure published under the auspices of the U.S. Homeopathic Association, it is stated, "The science of homeopathy rests on the principle that illnesses result from natural causes, and that substances — animal, vegetable, mineral and chemical — when given in large doses to a healthy person will cause known illness-like reactions. In homeopathy, an illness is treated by giving the patient minute doses of a substance or substances that produce a set of symptoms identical to that of the illness." (Well, so much for that — *res ipsa loquitur*. Keep quiet, Mack — play it again, Voltaire!!)

The treatment of Monkshood AKA aconite poisoning is, as you have guessed, symptomatic. Ingestion of any amount of this quite toxic compound should probably require you to administer ipecac syrup rather promptly (unless the condition of the patient contraindicates this emetic) followed by activated charcoal and a saline cathartic. It is probably wise to observe the patient via monitors, etc. for cardiac or respiratory depression. More specific treatment is directed toward the management of cardiac arrhythmias should they occur. Apparently bradycardia is quite common in this poisoning and thus atropine assumes the role of the drug of choice if such an adverse effect occurs.

This is the 40th Anniversary of the end of WWII. As ludicrous as it seems to me now, I can recall vividly my treatment for the sore throats incurred by my fellow shipmates. In my role as a Pharmacist's Mate Third Class on a supply ship in the Pacific I followed the Navy's instructions and painted their throats with merthiolate (Oh Hippocrates, please forgive me!!).

References

1. Kaufman, M. Homeopathy In America. Baltimore, Johns Hopkins University Press, 1971, pp 28-47.

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Thirst, Dehydration, and Old Age

William B. Blythe, M.D.

- *The elderly may need more water than they think they need.*

AS both seasoned physician and October intern unfortunately know too well, dehydration is more dangerous and much more common in the elderly patient than in younger adults. Why?

The increased hazard of dehydration in the older group is due to blunting of the cardiovascular reflexes which respond to, and minimize the effects of, depletion of the plasma volume. Thus, for a given loss in plasma volume, the older patient is more apt to develop symptoms of orthostatic hypotension and evidence of hypoperfusion of virtually all organ systems.

The higher prevalence of dehydration in the elderly is usually ascribed to a combination of two factors. First, the aging kidney is unable to concentrate urine as well as the younger one. Thus, for a given degree of water deprivation, the older patient is more apt to sustain a greater loss of plasma volume than a younger one. The only means by which dehydration can be naturally corrected is by an increased intake of fluid occasioned by thirst; and thus the need for the second factor to explain the frequency of dehydration in older people. The traditional view has been that, as a consequence of the sluggish cardiovascular response to dehydration or to illness *per se*, diminished mental awareness and confusion develop, thirst is abolished or decreased and dehydration thereby begets further dehydration.

From the Department of Medicine, UNC, Chapel Hill 27514.

Thus, in this construct, at least some frightening of mental acuity is necessary for diminished thirst.

A recent important study suggests that even the latter is not essential and makes it even clearer as to why dehydration is so common in the elderly. Investigators in Oxford, England studied the effect of water deprivation for 24 hours on thirst sensation in a group of healthy, elderly men and a control group of healthy, young men. After the period of water deprivation, both groups were asked to rate the degree of thirst occasioned by the water deprivation and then, during the following hour, to drink the amount of water needed to assuage their thirst.

The results are fascinating. Despite the fact that the stimuli for thirst were stronger in the older men, they were less thirsty and drank significantly less water during the repletion period than did the younger men.

Those who care for the elderly take heed! Fluid losses via mild gastrointestinal illness or modest diuretic therapy may not invoke thirst in this group and dehydration and plasma volume deficits may progress to a dangerous degree, even though there is no change in mental acuity. There may be times in the nursing home or hospital when water should be prescribed! It is cheaper and may save more lives than expensive and fancier nostrums.

Reference

1. Phillips PA, Rolls BJ, Ledingham JGG, et al. Reduced thirst after water deprivation in healthy elderly men. *N Engl J Med* 1984;311:753-9.

It has come to the attention of the Board of Medical Examiners that there are a growing number of situations in North Carolina in which ophthalmologists have entered into arrangements with optometrists whereby the optometrists refer to the ophthalmologists patients for cataract surgery and that following such surgery these patients are then returned by the ophthalmologists to the care of the referring optometrists for postoperative care and following. Because it is the view of the Board that such postoperative care and following constitutes the practice of medicine, the practice of permitting persons who are not licensed to practice medicine in the State of North Carolina to provide such care is specifically disapproved by the Board.

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*Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References:

1. Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy of diltiazem hydrochloride for the treatment of stable angina pectoris: Report of a cooperative clinical trial. *Am J Cardiol* 49:560-566, 1982.
2. Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exercise-inducible chronic stable angina with diltiazem: Effect on treadmill exercise. *Chest* 78 (July suppl):234-238, 1980.

Reduces angina attack frequency*

42% to 46% decrease reported in multicenter study.¹

Increases exercise tolerance*

In Bruce exercise test,² control patients averaged 8.0 minutes to onset of pain; Cardizem patients averaged 9.8 minutes ($P<.005$).

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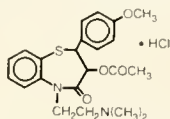
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PROFESSIONAL USE INFORMATION



DESCRIPTION

CARDIZEM (diltiazem hydrochloride) is a calcium ion influx inhibitor (slow channel blocker or calcium antagonist). Chemically, diltiazem hydrochloride is 1,5-Benzothiazepine-3-(acetyloxy)-5-[2-(dimethylamino)ethyl]-2,3-dihydro-2-[4-methoxyphenyl]-monohydrochloride, (+)-cis-. The chemical structure is:



Diltiazem hydrochloride is a white to off-white crystalline powder with a bitter taste. It is soluble in water, methanol, and chloroform. It has a molecular weight of 450.98. Each tablet of CARDIZEM contains either 30 mg or 60 mg diltiazem hydrochloride for oral administration.

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CARDIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth muscle.

Mechanisms of Action. Although precise mechanisms of its antianginal actions are still being delineated, CARDIZEM is believed to act in the following ways:

1. **Angina Due to Coronary Artery Spasm:** CARDIZEM has been shown to be a potent dilator of coronary arteries both epicardial and subendocardial. Spontaneous and ergonovine-induced coronary artery spasm are inhibited by CARDIZEM.
2. **Exertional Angina:** CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal and maximal exercise work loads.

In animal models, diltiazem interferes with the slow inward (depolarizing) current in excitable tissue. It causes excitation-contraction uncoupling in various myocardial tissues without changes in the configuration of the action potential. Diltiazem produces relaxation of coronary vascular smooth muscle and dilation of both large and small coronary arteries at drug levels which cause little or no negative inotropic effect. The resultant increases in coronary blood flow (epicardial and subendocardial) occur in ischemic and nonschemic models and are accompanied by dose-dependent decreases in systemic blood pressure and decreases in peripheral resistance.

Hemodynamic and Electrophysiologic Effects. Like other calcium antagonists, diltiazem decreases sinoatrial and atrioventricular conduction in isolated tissues and has a negative inotropic effect in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses.

In man, diltiazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, reduces the heart rate-blood pressure product for any given work load. Studies to date, primarily in patients with good ventricular function, have not revealed evidence of a negative inotropic effect, cardiac output, ejection fraction, and left ventricular and diastolic pressure have not been affected. There are as yet few data on the interaction of diltiazem and beta-blockers. Resting heart rate is usually unchanged or slightly reduced by diltiazem.

Intravenous diltiazem in doses of 20 mg prolongs AH conduction time and AV node functional and effective refractory periods approximately 20%. In a study involving single oral doses of 300 mg of CARDIZEM in six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree AV block. Diltiazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients with sick sinus syndrome, diltiazem significantly prolongs sinus cycle length (up to 50% in some cases).

Chronic oral administration of CARDIZEM in doses of up to 240 mg/day has resulted in small increases in PR interval, but has not usually produced abnormal prolongation. There were, however, three instances of second-degree AV block and one instance of third-degree AV block in a group of 959 chronically treated patients.

Pharmacokinetics and Metabolism. Diltiazem is absorbed from the tablet formulation to about 80% of a reference capsule and is subject to an extensive first-pass effect, giving an absolute bioavailability (compared to intravenous dosing) of about 40%. CARDIZEM undergoes extensive hepatic metabolism in which 2% to 4% of the unchanged drug appears in the urine. In vitro binding studies show CARDIZEM is 70% to 80% bound to plasma proteins. Competitive ligand binding studies have also shown CARDIZEM binding is not altered by therapeutic concentrations of digoxin, hydrochlorothiazide, phenylbutazone, propranolol, salicylic acid, or warfarin. Single oral doses of 30 to 120 mg of CARDIZEM result in detectable plasma levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination half-life following single or multiple drug administration is approximately 3.5 hours. Desacetyl diltiazem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 50% as potent a coronary vasodilator as diltiazem. Therapeutic blood levels of CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from dose-linearity when single doses above 60 mg are given; a 120-mg dose gave blood levels three times that of the 60-mg dose. There is no information about the effect of renal or hepatic impairment on excretion or metabolism of diltiazem.

INDICATIONS AND USAGE

1. **Angina Pectoris Due to Coronary Artery Spasm.** CARDIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm. CARDIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment elevation occurring during attacks).

2. **Chronic Stable Angina (Class II Effort-Associated Angina).** CARDIZEM is indicated in the management of chronic stable angina. CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomitant use of diltiazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities.

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury.** In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes. (See PRECAUTIONS AND ADVERSE REACTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.

Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in *in vitro* bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities in the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are: edema (2.4%),

headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%), AV block (1.1%). In addition, the following events were reported infrequently (less than 1%) with the order of presentation corresponding to the relative frequency of occurrence:

Cardiovascular	Flushing, arrhythmia, hypotension, bradycardia, palpitations, congestive heart failure, syncope
Nervous System	Paresthesia, nervousness, somnolence, tremor, insomnia, hallucinations, and amnesia
Gastrointestinal	Constipation, dyspepsia, diarrhea, vomiting, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH
Dermatologic:	Pruritus, petechiae, urticaria, photosensitivity
Other	Polyuria, nocturia

The following additional experiences have been noted:

A patient with Prinzmetal's angina experiencing episodes of vasospastic angina developed periods of transient asymptomatic asystole approximately five hours after receiving a single 60-mg dose of CARDIZEM.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: erythema multiforme, leukopenia, and extreme elevations of alkaline phosphatase, SGOT, SGPT, LDH, and CPK. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

OVERDOSAGE OR EXAGGERATED RESPONSE

Overdosage experience with oral diltiazem has been limited. Single oral doses of 300 mg of CARDIZEM have been well tolerated by healthy volunteers. In the event of overdosage or exaggerated response, appropriate supportive measures should be employed in addition to gastric lavage. The following measures may be considered:

Bradycardia	Administer atropine (0.60 to 1.0 mg). If there is no response to vagal blockade, administer isoproterenol cautiously.
High-Degree AV Block	Treat as for bradycardia above. Fixed high-degree AV block should be treated with cardiac pacing.
Cardiac Failure	Administer inotropic agents (isoproterenol, dopamine, or dobutamine) and diuretics.
Hypotension	Vasopressors (eg, dopamine or levaterenolol bitartrate).

Actual treatment and dosage should depend on the severity of the clinical situation and the judgment and experience of the treating physician.

The oral LD₅₀'s in mice and rats range from 415 to 740 mg/kg and from 560 to 810 mg/kg, respectively. The intravenous LD₅₀'s in these species were 60 and 38 mg/kg, respectively. The oral LD₅₀ in dogs is considered to be in excess of 50 mg/kg, while lethality was seen in monkeys at 360 mg/kg. The toxic dose in man is not known, but blood levels in excess of 800 ng/ml have not been associated with toxicity.

DOSSAGE AND ADMINISTRATION

Exertional Angina Pectoris Due to Atherosclerotic Coronary Artery Disease or Angina Pectoris at Rest Due to Coronary Artery Spasm. Dosage must be adjusted to each patient's needs. Starting with 30 mg four times daily before meals and at bedtime, dosage should be increased gradually (given in divided doses three or four times daily) at one- to two-day intervals until optimum response is obtained. Although individual patients may respond to any dosage level, the average optimum dosage range appears to be 180 to 240 mg/day. There are no available data concerning dosage requirements in patients with impaired renal or hepatic function. If the drug must be used in such patients, titration should be carried out with particular caution.

Concomitant Use With Other Antianginal Agents:

1. **Sublingual NITG** may be taken as required to abort acute anginal attacks during CARDIZEM therapy.
2. **Prophylactic Nitrate Therapy**—CARDIZEM may be safely administered with short- and long-acting nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.
3. **Beta-blockers.** (See WARNINGS and PRECAUTIONS.)

HOW SUPPLIED

Cardizem 30-mg tablets are supplied in bottles of 100 (NDC 0088-1771-47) and in Unit Dose Identification Paks of 100 (NDC 0088-1771-49). Each green tablet is engraved with MARION on one side and 1771 engraved on the other. CARDIZEM 60-mg scored tablets are supplied in bottles of 100 (NDC 0088-1772-47) and in Unit Dose Identification Paks of 100 (NDC 0088-1772-49). Each yellow tablet is engraved with MARION on one side and 1772 on the other.

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Peritonitis in a Patient on Continuous Ambulatory Peritoneal Dialysis

Debra A. Heldman, M.D.

• Report of a case of peritonitis caused by the fungus *Fusarium oxysporum*.

OVER the past decade, continuous ambulatory peritoneal dialysis (CAPD) has become an accepted and increasingly utilized method of treating patients with chronic renal failure. Its advantages over hemodialysis include lower cost, increased patient mobility, higher hemoglobin concentration, fewer fluid and electrolyte restrictions, better biochemical balance, and better control of blood pressure.

The most frequent serious complication of CAPD is peritonitis which occurs every year or two in the average patient. Vas et al¹ require at least two of the following three criteria to establish a diagnosis of peritonitis: 1) abdominal pain or tenderness, 2) peritoneal fluid with greater than 100 neutrophils/mm³, and 3) organisms in the peritoneal fluid. Gram positive organisms (usually *Staphylococcus epidermidis*, *Staph. aureus*, or *Streptococcus*) cause 60-70% of cases and gram negative organisms (usually *E. coli*, *Pseudomonas*, *Klebsiella*, or *Enterobacter*) cause 15-30%.¹⁻³ The remaining cases are caused by anaerobes, less common bacterial species, or fungi.

I recently cared for a patient on CAPD who had peritonitis due to an unusual organism. This patient was a 41-year-old black woman with chronic renal failure who had been on CAPD for three years. Two weeks before admission to our hospital, she developed diffuse abdominal pain, nausea, vomiting, and low-grade fever. When she initially developed these symptoms, she was admitted to another hospital and felt to have bacterial peritonitis. She was treated for three days with intraperitoneal cephalothin but her peritoneal fluid showed fewer than 100 neutrophils/mm³ and cultures were negative. Her symptoms did not improve and she came to us for another opinion. Her temperature was 37.5° C and she had bilateral lower quadrant tenderness. The peripheral white blood cell count was 14,300; the peritoneal fluid had 47 white cells/mm³ with 49% neutrophils. An abdominal echogram showed small kidneys; there was no perinephric fluid collection or evidence of loculation elsewhere. She was admitted to our hospital and was treated empirically with intravenous and intraperitoneal tobramycin. This was discontinued on the third hospital day when peritoneal, blood, and urine cultures were negative. Subsequently, the peritoneal fluid



Figure 1. *Fusarium oxysporum* growing on agar.

grew a fungus identified as *Fusarium oxysporum*. (See figures 1 and 2.)

Fusarium is a mold found in the soil and air throughout the United States, especially in the Southeast. Human infections with *Fusarium* are uncommon but have been described in keratitis, endophthalmitis, burn infections, brain abscess, osteomyelitis, skin infections, septic arthritis, and disseminated opportunistic infection.

Three cases of peritonitis caused by *Fusarium* have been reported previously, all in patients on CAPD.^{4, 5} *Fusarium* is or rapidly becomes resistant to antifungal agents.^{4, 6} McNeely et al⁴ described two cases of *Fusarium* peritonitis, one caused by *F. moniliforme*, the other by *F. oxysporum*. In both cases, the organism had or developed resistance to amphotericin, 5-fluorocytosine, and miconazole. Kerr et al⁵ described one case of peritonitis caused by a *Fusarium* species on which sensitivity testing was not done. In addition to being resistant to antifungal agents, *Fusarium* has been shown to adhere to and invade the wall of the peritoneal catheter of a patient.⁴ Both of these factors are important considerations in determining the appropriate therapy for *Fusarium* peritonitis.⁴ McNeely et al⁴ treated

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Figure 2. *F. oxysporum* spores on lactophenol slide, unstained, magnification $\times 1300$.

the first of their patients with miconazole intraperitoneally for 21 days during which time the peritoneal cultures remained positive for *Fusarium*. After removal of the section of peritoneal catheter harboring a *Fusarium* "vegetation," the cultures became negative. They successfully treated their second patient with catheter removal only. Kerr et al treated their patient with *Fusarium* peritonitis with I.V. amphotericin and catheter removal.⁵

Since these three previously described cases showed little or no benefit from antifungal drugs, we elected to treat our patient just by removing the Tenckhoff catheter. Cultures of the catheter tip and subcutaneous cuff were positive for *Fusarium oxysporum*. After catheter removal, the patient did well with resolution of her symptoms. She was hemodialyzed for three weeks after which the catheter was replaced. She has continued to do well three months after catheter replacement.

Fusarium is one of several fungi that can cause peritonitis in patients on CAPD. Five to fifteen percent of all cases of peritonitis in these patients are caused by a fungal organism.^{3, 5, 7} In addition to *Fusarium*, these organisms have included *Candida albicans*, *Candida parapsilosis*, *Candida tropicalis*, *Torulopsis glabrata*, *Trichoderma viride*, *Exophiala jeanselmei*, *Drechslera spicifera*, *Drechslera australiensis*, *Mucor* sp., *Trichosporium* sp., *Rhodotorula rubra*, and *Aspergillus fumigatus*. Most cases have been secondary to *Candida* with only a few cases caused by other species.

Thus, CAPD represents a major advance in our ability to treat chronic renal failure. An appreciation of the risk of peritonitis and the organisms that cause it is necessary for successful use of this form of dialysis. Symptoms of fungal peritonitis mimic those of the more common bacterial peritonitis (abdominal pain, fever, and cloudy peritoneal fluid with increased neutrophils). The management of fungal peritonitis is controversial. Some favor early catheter removal in all cases. However, others have reported successful treatment of sensitive organisms with appropriate intraperitoneal (with or without intravenous) antifungal therapy.

References

1. Vas SI: Microbiologic aspects of chronic ambulatory peritoneal dialysis. *Kidney Int* 1983;23:83-92.
2. Gokal R, Francis DMA, Goodship THJ, Bint AJ, Ramos JM, Ferner RE, Proud G, Ward MK. Kerr DNS: Peritonitis in continuous ambulatory peritoneal dialysis. *Lancet* 1982;2:1388-91.
3. Cecchin E, DeMarchi S, Panarello G, Franceschin A, Chiaradia V, Santini G, Tesio F: *Torulopsis glabrata* peritonitis complicating continuous ambulatory peritoneal dialysis: successful management with oral 5-fluorocytosine. *Am J Kidney Dis* 1984;4:280-4.
4. McNeely DJ, Vas SI, Dornbros N, Oreopoulos DG: *Fusarium* peritonitis: an uncommon complication of continuous ambulatory peritoneal dialysis. *Peritoneal Dial Bull* 1981;1:94-6.
5. Kerr CM, Perfect JR, Craven PC, Jorgensen JH, Drutz DJ, Shelburne JD, Gallis HA, Gutman RA: Fungal peritonitis in patients on continuous ambulatory peritoneal dialysis. *Ann Intern Med* 1983;99:334-7.
6. Jones DB, Forster RK, Rebella O: *Fusarium solani* keratitis treated with natamycin (pimaricin). *Arch Ophthalmol* 1972;88:147-54.
7. Cecchin E, Panarello G, DeMarchi S: Fungal peritonitis in ambulatory peritoneal dialysis (letter). *Ann Intern Med* 1984;100:321.

The Entrepreneur Physician

William L. Trombetta, J.D., Ph.D. and Leif C. Beck, J.D., C.P.B.C.

There are the few who make things happen, the many more who watch things happen, and the vast majority who say — "what happened?"

Nicholas Murray Butler

IN our work with medical practices, we have begun to notice a most interesting phenomenon. While performing a marketing study here, a one-shot consulting assignment there or dealing with arrangements for a satellite office building, we are also witnessing the emergence of the "entrepreneur physician." This is the type of doctor who takes risks to start a new venture, succeeds in getting it up and running despite various odds against success and yet hopefully manages to keep his or her marriage, family life and ideals relatively intact in the process.

A Special Breed

The entrepreneur physician appears to be a special breed apart. At one time or another, almost everyone has had an idea that would certainly make a million dollars if properly carried out. Yet very few of these "ideas in the shower" ever come to fruition. The entrepreneur physician, however, has the special abilities to spot and evaluate business potential and, most importantly, to implement those opportunities into something significant.

Another interesting characteristic of entrepreneur physicians is that, demographically, they are indistinguishable. They come in all ages and medical specialties. But there is something in the entrepreneur physician's psyche not easily measurable and virtually impossible to quantify — call it motivation, drive, desire or hunger — that sets him or her apart.

Formal business education and extensive business experience do not seem to be necessary. This parallels the business world in general where many successful entrepreneurs have no MBA degree or comparable background. We remember, for example, a pediatrician who is the heart and soul of a thriving large multi-specialty group practice though he came into this role simply by his willingness to assume responsibility and to be alert to the group's opportunities and challenges.

Entrepreneur physicians depart from many business-world entrepreneurs in one respect, though. Those with whom we have worked are neither rebels, outcasts or mavericks as are many other successful businessmen; rather, they are doctors who remain successful in their more

conventional careers as physicians and who continue to insist on high standards of quality health care. One general internist in New York state, for example, still maintains the heaviest, loyal patient following while leading his ten-member group into arrangements which we think will cause growth to 25 or more doctors in just a few years; quality has in no way been compromised in his efforts.

Not Satisfied

In addition to being risk takers and innovators, entrepreneur physicians are not satisfied with the status quo. They anticipate and initiate change rather than passively react to market forces. This conforms with one of our key sayings for forward-thinking physicians these days: "The best way to manage in an environment of escalating change is to anticipate change."

Though not always the case, many of the entrepreneurial physicians seem to be more comfortable starting up new enterprises instead of merely operating and managing existing practices. As a corollary, many of them are not oriented toward administration. This is significant because as a professional enterprise matures, what may have started as a special challenge inexorably shifts to an administrative and executive phase in which planning, pricing, marketing and financing become far more important than "the creative juices."

There is, for example, a highly successful solo specialist who is moving from that one-doctor configuration to what should be a regional center for his specialty comprising many doctors and unique features. In making the transition, we have identified the need for converting his developmental and medical talents into the disciplined approach of a true executive as being vital to his project's future. This would represent the conversion of his entrepreneurial capacity into an ongoing business/professional success.

Reinvigoration

Entrepreneurs constantly focus on periodic themes to keep reinvigorating themselves. One group practice which we place in this category meets frequently to assess the relationship between its recently adopted lower fee schedule (which was a competitive strategy) and the quality of its services. These doctors realized at the outset that no one, including third party payors, is interested in "the lowest prices in town" but rather in the best value for the dollar.

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Hence, they periodically challenge themselves to do more in the way of providing "value added" health care services to their patients while keeping their fees below those of most of their peers.

Another group practice in its initial formative stage of association has created a working committee whose sole assignment is to critically evaluate alternative delivery systems. It is particularly on the lookout for where the "blind-side competition" will be coming from. The committee members play devil's advocates in projecting how, if they were various other competing providers, they would attempt to compete with their own entity.

Alert to Competitors

And a family practice group we know of meets regularly to discuss and hopefully discover competitive approaches of which their "colleagues" (who really are their competitors in the same service area) either are unaware or are ignoring. This group's forum is an informal "rap" session during which the doctors attempt, among other things, to list as many consumer concerns as possible for the kinds of health services they provide. In other words, their orientation is not what services the doctors provide (a "product" orientation) but what benefits their patients derive (a "consumer" orientation).

This kind of brainstorming led the family practice group to begin marketing a "health well-being education" service to people who purchase home health care kits in the emerging self-care market. The doctors believe they can position themselves as the premier health care information source to consumers who remain apprehensive about administering and understanding self-care products after the purchase of such products.

Just as entrepreneurs who started vastly successful high-tech companies (like Wang, Apple and lesser successes), these entrepreneurially-minded family practitioners are keeping their focus on the consumer. They follow a "reinvigoration" process to be sure they stay closely enough attuned to the buyers of their services to keep their momentum going.

Risk Takers, But Adapters

Entrepreneurial physicians reflect a tension common to all risk takers — they are not that concerned over security. That is, they are personally not afraid to fail or lose their investment as part of the price for special accomplishment. Indeed, they thrive on challenge and hard work so long as they are part of something new. Family values can easily be shunted to the wayside by such people, but interestingly most of these doctors we have seen appear blessed with continued good perspectives on their whole lives.

Perhaps part of their sense of perspective, the entrepreneur doctors accept the need for thought processes that most physicians reject as not within their training. They are active in forecasting revenues and overall budgeting, in evaluating costs and capital requirements and in the hard discipline of strategic planning. One group of just four partners in a nearby state, for example, has assembled a 200-page prospectus describing the group; their avowed purpose is to attract major corporate financing for their expansion plans within the HMO, PPO, etc. environment.

Finally, entrepreneurial physicians share supportive value systems and an optimistic corporate culture. Whereas many others in medicine see only negativism and external meddling by outside forces in these turbulent times, the entrepreneurs seem to accept free enterprise and competition. They look upon the problems facing health care as opportunities to be capitalized upon in hopes that these opportunities will result in better health care and increased consumer satisfaction, while benefiting themselves and their groups.

Conclusion

Today, we live in an era of innovation and entrepreneurial drive. This fact is true in every other industry, and there is no reason to exempt health care from the patterns. As events seem to overwhelm most doctors, and in the long run we fear that events will in fact do so, entrepreneurial physicians promise to be the people who will adapt and prosper. Group practices with such people in their midst are indeed blessed, though possibly uneasy.

The State of the State

Ronald H. Levine, M.D., MPH

- *Dr. Levine reviewed the health of North Carolina in this address at the Annual Meeting of the North Carolina Medical Society on May 3, 1985.*

IT is an honor to once again carry out my statutory obligation of presenting to the physicians of North Carolina as well as the members of the Health Commission a review of the major public health accomplishments of the year past. Just last week the latest results of The North Carolina Citizen Survey became available. I was struck by the finding that over a third of our adult population indicated they had one or more of the following diseases: high blood pressure, heart disease, stroke or glaucoma. Add arthritis and the percentage increases to 44%. The staggering future economic burden that faces us as a state and nation as a result of morbidity and mortality among tomorrow's aging population has led me to devote a sizable section of this discussion to the topic of health promotion efforts in North Carolina. First, however, let me review some of the achievements recently recorded, much of them with your help and support.

During the last several years the provision of health care to tuberculosis patients has changed dramatically from sanatorium-dwelling to a community-based approach. Reliance upon the 12 acute care hospitals and our local health departments, now our front line against this disease, has not compromised the control program.

We found that 41% of newly positive TB cases on treatment converted their sputum to negative within three months and that 71% had converted within six months. Eighty-three percent of patients who were started on drugs completed the prescribed course of therapy. Eighty-eight percent of close contacts of patients were examined within 14 days of when the local health department was notified.

Forty-seven percent who were on preventive therapy with INH completed the prescribed 12-month course of treatment. Although all these indices fall short of the ideal they do indicate, as does our falling incidence rate, that the closure of the sanatoria has not led to a decrease in program quality. A disturbing note is that there were two outbreaks of disease caused by drug-resistant *mycobacterium tuberculosis* in our state. One of these strains is the first ever documented to be resistant to four drugs.

In the area of sexually transmitted diseases, reported gonorrhea cases (including military morbidity) decreased for the second consecutive year. During 1984, more than one quarter million women in family planning clinics and elsewhere were screened for gonorrhea and slightly less than 5% were positive. This screening effort, coupled with referral of sex partners for examination and patient counsel-

ing and treatment, has played a large part in the reduction of this disease.

Drug resistance is a problem with this bacterium also. We saw an increase from 24 cases with penicillin-resistant strains during 1983 to 62 cases during 1984. These were reported from 15 different counties during 1984, compared with only 10 counties the previous year.

Early syphilis cases decreased for the first time in five years. Although the decrease was only 1%, this reversal of the upward trend is encouraging. We only had two cases of congenital syphilis in 1984. We should not have any!

An area of present and future concern is the AIDS problem. The acquired immunodeficiency syndrome was first described in 1981 and was quickly recognized as an almost universally fatal disease. North Carolina has reported 75 patients with the disease and 53 of those have already died.

A primary concern is that infected persons may contaminate the nation's blood supply. On March 2, the Food and Drug Administration licensed a test for blood banks to use to detect antibodies to the presumed causative agent. Blood showing a positive finding will be discarded and the donor will be informed.

The Centers for Disease Control is intent upon discouraging concerned high-risk individuals from donating blood just for the purpose of receiving a screening test at blood banks and thereby increasing the danger to the blood supply due to possible false negative tests. They have called upon us and we have agreed to set up alternative diversionary testing sites across the state. The sites will be located in most local health departments. [See NCMJ 1985;46:353-360.] The North Carolina State Laboratory will perform the screening tests and obtain confirmatory tests, if indicated, on blood specimens drawn at local health facilities. The individual will receive pretest counseling, post-test counseling if test results are positive, and referral for medical evaluation. Printed materials will be made available to assist in these counseling sessions. Personnel from the Venereal Disease Control Program will be re-assigned in order to assist counties with this effort. Please do not hesitate to call or write our agency if you would like more information on this effort.

In the area of Dental Health, we continue to improve our fluoridation coverage throughout the state. The fluoride content of water supplies is being adjusted to the optimum level in 195 North Carolina communities; 26 additional towns are served by naturally fluoridated water. Thus 85% of the population served by a municipal water system is receiving fluoridated water. An additional 52,000 children

From the Division of Health Services, Box 2091, Raleigh 27602-2091.

are served by rural school-water fluoridators, and 390,000 children in grades K-8 in over 1000 schools in 85 counties participate in a weekly sodium fluoride mouthrinse program; 80% of these children live in non-fluoridated areas. The 55% decrease in dental caries achieved in our state by the country's #1 preventive dentistry program should be readily recognizable to you when you look in your young patients' mouths.

Maternal and child care continues to be a major emphasis of your state and local public health agencies. In 1983, North Carolina's infant mortality rate was 13.2 deaths per thousand live births, down from 13.7 in 1982, but reflecting an unmistakable leveling of what had been a rather steady and significant drop in infant mortality over a considerable time. The prevention of premature births is at the core of our efforts to re-set in motion the reduction in infant mortality. As of this date 83 counties have implemented prematurity risk assessment and intervention systems. If these efforts are successful we expect to see some impact on the incidence of low birthweight beginning in 1986 or 1987. This year we completed the network of 21 regional high risk maternity clinics. Only nine counties remain that have no publicly-administered prenatal care for indigent pregnant women. Unfortunately, some of these nine are among those with the highest infant mortality rates in the state.

Teen age pregnancies remain a problem. In 1979, North Carolina ranked eleventh nationally in the percent of all live births that occurred to women 19 and under. At that time one in 13 adolescents aged 15 to 19 became pregnant. Since then this statistic has worsened. In 1983 one in eleven North Carolina teens 15-19 became pregnant. Mothers under 20 produced 21 percent of all pregnancies, 17 percent of live births, 23 percent of low weight babies and 24 percent of the neonatal deaths. Teens were less likely to begin their prenatal care early and less likely to have at least eight prenatal visits. Our Family Planning Program continues to provide clinical services to these teenagers but is also initiating programs for parents and teenagers on the subject of postponing sexual activity. Over 200 individuals in this state have been trained to use the "Postponing Sexual Involvement" curriculum developed at Emory University. Many of these trainees have in turn offered training in their communities and, in some instances, have worked with local education agencies to incorporate this into the school curriculum.

Let us turn now to more in-depth coverage of health promotion programs and services in our state. At the turn of the century the leading causes of death were infectious and communicable diseases. Gains against these once great killers came as a result of improvements in sanitation, housing and nutrition and the advent of immunizations and antibiotics. Maintaining services to prevent infectious and communicable diseases among those at risk remains an important task for public health.

Today's leading killers and cripples are chronic diseases and accidents. New methods are needed to address these causes of death and disability. These methods unavoidably focus on lifestyle change and environmental enhancement as well as anticipatory, high-quality medical care.

To understand the need for successful preventive in-

terventions in our state, it is useful to look at data on premature adult mortality, i.e., those deaths occurring between the ages of 18 and 64. In North Carolina each year there are approximately 49,000 deaths from all causes, one-third of which occur during this age span. Thus, 45 North Carolinians die prematurely each day. This is a tragic waste. These deaths are occurring during the "productive" years of life. In fact, in 1981 almost 200,000 person-years of the adult working population of North Carolina were lost. The economic impact of these deaths is estimated at 2.1 billion dollars.

In comparing North Carolina against the latest national data, we found that age-adjusted mortality rates for cerebrovascular disease are 27% higher in North Carolina, motor vehicle accidents 10% higher, all other accidents 17% higher and pneumonia and influenza and nephritis 10% higher. Our age-adjusted heart disease rate is almost 9% higher than the nation. In addition, cancer mortality appears to be rising faster in North Carolina than in the United States. Between 1979 and 1981, the state's age-adjusted cancer death rate rose by 2.5% while the national rate rose by .9%.

Age-adjusted mortality rates show wide gaps in the overall risk of mortality for North Carolina men versus women and nonwhites versus whites. In 1979-81, the male mortality rate was nearly double the female rate. The nonwhite age-adjusted mortality rate for both sexes remained more than 40 percent above the white rate. This suggests that preventive interventions should be targeted to specific high risk groups.

As much as 50% of mortality may relate to lifestyle. Individuals can make modest lifestyle changes which can substantially reduce risks for several of the leading causes of death. Such measures include but are not limited to:

- reduction of alcohol misuse
- moderate dietary changes to reduce excess intake of calories, fat, salt, and sugar
- elimination of cigarette smoking
- participation in periodic, targeted screening
- adherence to speed laws and seat belt use

A growing number of intervention programs are demonstrating positive health outcomes or impacts. From these successes, certain characteristics which seem to be effective in reducing health risks have been identified.

First is the use of a reasonably formalized risk assessment to assist individuals in identifying elevated health risks. The subsequent referral of those persons who wish to make changes in their health behavior via an appropriate intervention program is more likely to lead to some measure of success.

A second characteristic is the use of periodic selective screening; let me emphasize not mass multiphasic screening but selective screening (determined by age and sex) for major disorders such as hypertension and certain forms of cancer. This type of screening is much more cost-effective and more likely to reveal significant findings that can be further clarified and diagnosed by the physician and lead to successful early intervention.

A third characteristic of successful programs has been the deliberate use of multiple interventions to address a specific health problem in a specific target population. This

approach is based on an understanding that behavior is complex. Multiple causative factors are involved in the adoption of an unhealthy behavior. Thus, for many persons there is a need for multiple interventions to bring about a reversal in this behavior.

To provide an example of what is meant by multiple interventions, it may be useful to look at interventions aimed at weight management.

Some intervention methods are client oriented, for example:

- Physician counseling about the health risks caused by obesity
- Nutrition counseling which might be provided by the physician or by a nutritionist in the health department
- Cooking demonstrations using recipes from *The American Heart Association Cookbook*

Other interventions may be simultaneously carried out by local groups using social support systems to bring about changes in group members. For example:

- Weight management programs conducted in local churches
- After-dinner walking programs sponsored by women's clubs

Yet other interventions might focus on creating an environment where healthy choices are accessible. For example:

- Replacing traditional vending machine foods with healthy alternatives in local workplaces
- Establishing a low calorie special in daily menus at local restaurants

The disease prevention and health promotion concepts I have described are now just beginning to be applied in a number of North Carolina sites; and it appears that there has been a rather gratifying response to these efforts among middle and upper income groups. It would not be accurate, however, to claim success among our lower income groups, at least to this point in time.

There is today a need to make disease prevention and health promotion programs operational on a wide scale throughout the state, and not just on ethical and medical grounds. If, as is estimated, our over-65 citizens in the year 2025 will number 1 out of every 4 of us and if these senior citizens of the future require abundant nursing home care and frequent hospitalization, I am afraid we will break the bank. To avoid economic consequences of great magnitude relating to our rapidly aging population, we have to see to it that 65 is young, and you know that that can be accomplished.

It is my hope that our local health departments can serve as catalysts to build strong local coalitions for disease prevention. Such coalitions should involve the medical community, business and industry, voluntary agencies and other local organizations. These groups should work jointly to identify priority disease prevention needs in communities, to develop common objectives, to develop comprehensive strategies for reaching objectives, and to develop the necessary resources. Such a comprehensive approach would help to assure that disease prevention efforts reach all segments of the community and that they have a high potential for success.

At the state level, we must give the local health depart-

ments the means to get this message across to their clients. We have recently developed a media center which will provide to health departments and other local agencies audiovisual messages that are usable with populations with low levels of literacy. We have also used federal block grant funds to initiate a series of risk reduction projects in a number of counties. The purpose is to reduce the prevalence of specific health risks in targeted populations. Projects range from implementation of worksite health promotion projects to implementation of an accident prevention program for farm workers.

We also must find the means to more adequately measure the extent of these problems in North Carolina. A risk factor surveillance system via an on-going telephone survey has begun and will provide information on the health behavior of North Carolinians related to seat belt use, high blood pressure, diet, exercise, smoking and stress. We now know that in attempting to understand the problem of cancer in the state, the higher survival rate we now thankfully experience renders the use of mortality data terribly incomplete. Thus, a recent study commissioned by the North Carolina Board of Science and Technology recommended a rejuvenated state central cancer registry supported by strong regional registries in our major medical centers. We are very optimistic that, with the strong support of your Cancer Committee, indeed the entire North Carolina Medical Society, we can bring this effort off successfully.

Now in issuing a call for a major collaborative effort to the many community organizations, the public health system, the private practitioners, the media and the general public in behalf of disease prevention and health promotion am I promising too much? Are such goals overly optimistic regarding what truly can be achieved? There are skeptics out there; probably there are several in this room. If you are on the fence, please listen and heed these unassailable findings, recently summarized in *The New England Journal of Medicine*.

First, The Numerator — The Patients

For persons aged 35-74, the death rate for coronary heart disease has fallen more than 30% since the late 1960s. Death rates from stroke have fallen even more precipitously. This decline is the greatest of any country in the world. Although better postcoronary care of patients may play some role in this, it is clear that the rate of heart attacks has decreased significantly over that period.

The Denominator — The American People

1) By 1979 almost two-thirds of all Americans had changed their eating patterns and attributed that change to health concerns.

2) The intake by American adults of eggs, fat-containing dairy products, and beef is substantially down.

3) In the early 1960s mean serum cholesterol among middle-aged men was about 240 mg/dl. The mean is now approaching 200.

4) In 1964 the majority of men smoked; now only about one-third do.

5) The decline in cardiovascular mortality has been much greater in salaried workers vs. wage employees, in higher socio-economic groups vs. lower, in physicians vs. the

general population — all attesting to the importance of the ability to understand and adapt this concept. I think you will be particularly interested in this next finding. Twenty-five years ago white male California physicians were dying from coronary heart disease at a rate 15% higher than aged-matched non-physicians. They are now dying at a rate 31% lower than the control group. Trends in mortality from lung cancer parallel these findings. It will not be a surprise for you to hear that 25 years ago a majority of male physicians were cigarette smokers. Today less than 10% of physicians smoke as compared with 40% of white men generally.

Time prevents me from exploring issues of seat belt use,

sedentary life style, stress management and other health behaviors, but I submit that the jury is in, its verdict is unassailable and it is now the job of the practitioner, the university, the health department and anyone else who can lend a hand to convert this understanding into concerted, effective action.

I am confident that the strong collaborative effort that we have demonstrated in the great victories we have together won and enjoyed in the past over such enemies as communicable disease, environmental contamination and maternal mortality can and will be utilized as we intensify our efforts to reduce preventable, premature death and disability from today's major health problems.



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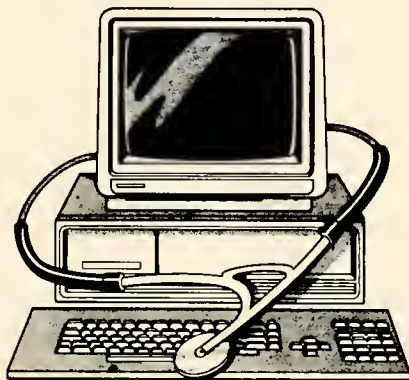
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No. 455—Each IINDERIDE [®] LA 80/50 Capsule contains	80 mg
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Hydrochlorothiazide	
No. 457—Each IINDERIDE [®] LA 120/50 Capsule contains	120 mg
Propranolol hydrochloride (INDERAL [®] LA)	50 mg
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No. 459—Each IINDERIDE [®] LA 160/50 Capsule contains	160 mg
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INDERIDE LA is indicated in the management of hypertension.

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CONTRAINDICATIONS

Propranolol hydrochloride (INDERAL[®]):

Propranolol is contraindicated in: 1) cardiogenic shock; 2) sinus bradycardia and greater than first degree block; 3) bronchial asthma; 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with propranolol.

Hydrochlorothiazide:

Hydrochlorothiazide is contraindicated in patients with anuria or hypersensitivity to this or other sulfonamide-derived drugs.

WARNINGS

Propranolol hydrochloride (INDERAL[®]):

CARDIAC FAILURE. Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary they can be used with close follow-up in patients with a history of failure who are well compensated, and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE. continued use of beta blockers can in some cases lead to cardiac failure. Therefore, at the first sign or symptom of heart failure the patient should be digitalized and/or treated with diuretics and the response observed closely, or propranolol should be discontinued (gradually if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction, following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned, the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it is usually advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

THYROTOXICOSIS. Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

MAJOR SURGERY. The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA BLOCKERS. Inderide LA should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

DIABETES AND HYPOLYCEMIA. Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure.

Hydrochlorothiazide:

Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentialiation occurs with ganglionic or peripheral adrenergic-blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

PRECAUTIONS

Propranolol hydrochloride (INDERAL[®]):

GENERAL. Propranolol should be used with caution in patients with impaired hepatic or renal function. Propranolol is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoceptor blockade can cause reduction of intraocular pressure. Patients should be told that propranolol may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS. Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS. Patients receiving catecholamine-depleting drugs, such as reserpine, should be closely observed if propranolol is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncope attacks, or orthostatic hypotension.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY. Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY. Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS. Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother.

PEDIATRIC USE. Safety and effectiveness in children have not been established.

Hydrochlorothiazide:

GENERAL. Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals.

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs/risks of cause are: Dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present or during concomitant use of diuretics.

Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content.

Any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Diabetes mellitus which has been latent may become manifest during thiazide administration. If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid disturbance.

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function.

DRUG INTERACTIONS. Thiazide drugs may increase the responsiveness to tubocurarine.

The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

PREGNANCY. Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

NURSING MOTHERS. Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing.

PEDIATRIC USE. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Propranolol hydrochloride (INDERAL[®]):

Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular. Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency usually of the Raynaud type.

Central Nervous System. Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometric tests.

Gastrointestinal. Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic. Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory. Bronchospasm.

Hematologic. Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-immune. In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous. Alopecia, LE-like reactions, psoriasis-like rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

Hydrochlorothiazide:

Gastrointestinal. Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, pancreatitis, cholestatic jaundice, pancreatitis, sialadenitis.

Central Nervous System. Dizziness, vertigo, paresthesias, headache, xanthopsia.

Hematologic. Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

Cardiovascular. Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics).

Hypersensitivity. Purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis), cutaneous vasculitis, fever, respiratory distress, including pneumonitis, anaphylactic reactions.

Other. Hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness, transient blurred vision.

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

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Coverage

Daniel L. Dolan, M.D.

PERSONAL time-off is necessary for physician health and well-being in hectic modern practice. It necessitates coverage. Coverage requires the erection of systems within groups or individual practices, which are activated most commonly on weekends or holiday periods. The disadvantage is that serious medical problems presenting at these times are often, of necessity, dealt with by strangers unfamiliar with the patient. In the following true case report, each physician acted properly and effectively within the agreed upon rules of cross-coverage. The outcome would have been the same. This case report is presented to demonstrate the unwieldiness, re-traced steps, and fractionation of care that can result when acute illness encounters "the system."

Mr. A., a 79-year-old gentleman, went to the office of his physician, Dr. 1., on a Friday morning because of low back pain. Dr. 1. was out of town and his patients were being transferred to Dr. 2. who promptly saw him. The patient told of low back pain for several weeks and indicated that Dr. 1. had removed a carcinoma from his sigmoid colon in the spring of 1979 at a local hospital, and although he had undergone treatment, a recent check had revealed no evidence of recurrence. Dr. 2., a general surgeon, telephoned Dr. 3., an orthopedist, and arranged referral. Dr. 3. arranged for Mr. A. to be hospitalized following the telephone call and, this accomplished during the middle part of Friday, Mr. A. arrived on the ward at approximately 2 p.m. Dr. 3. arranged to have Dr. 4. see Mr. A. on evening rounds and assess his low back pain, since Dr. 4. was covering for his group that evening.

Dr. 4. arrived on the ward at approximately 6 p.m., but fifteen minutes earlier Mr. A. began having copious hemoptysis with blood pressure dropping to approximately 90 systolic. He was quite dyspneic and displayed bilateral rales when Dr. 4. examined him. Dr. 4. ordered an electrocardiogram and requested an internal medicine consultation urgently through the emergency room consultation card system, wherein an internist on the hospital staff would take all such calls for 24-hour periods in rotation. Dr. 5., up for the day on this list, had signed out to his partner, Dr. 6., who was contacted by telephone in his stead. Dr. 6. was unaware of this change, however, and having attained senior staff status wherein it was not necessary for him to take emergency room call, contacted Dr. 7., attending on the house staff teaching service, and arranged referral. Dr. 8., a senior house officer, and Dr. 9., his intern, saw the patient immediately with Dr. 7., the attending, and evaluated the patient over the next three hours. The

patient's PaO_2 was 41.6 torr rising to 132.7 following 60% oxygen therapy. PaCO_2 was 36, the electrocardiogram revealed a right bundle branch block with right axis deviation and sinus tachycardia, and the chest x-ray showed interstitial markings bilaterally, fluid at the right base, cardiomegaly, and a possible right hilar mass. A platelet count was 35,000; prothrombin time was 17 seconds with a control of 12.6. Partial thromboplastin time was 39.8 seconds with a control of 32.9. Because of the massive episodic hemoptysis, neoplasm was considered more likely than pulmonary embolus or congestive heart failure. A pulmonology consult, Dr. 10., was obtained rapidly to consider bronchoscopy. Dr. 10. raised the possibility of bronchiectasis. The patient had stopped hemorrhaging by this time, and it was felt best to more fully evaluate his clinical and hematologic status the following morning before bronchoscopy.

On Saturday morning an SMA was obtained, showing an alkaline phosphatase greater than 350, an LDH greater than 600, an SGOT of 160, and a glucose of 234 (I.V. running). A sputum culture and Gram stain revealed normal flora. A diagnosis of disseminated intravascular coagulation was felt likely. Dr. 11. replaced Dr. 8., being on-call for that day, and Dr. 12. replaced Dr. 10. as pulmonology consultant, also covering for the weekend. Dr. 11., learning of the patient's earlier sigmoid carcinoma in a different hospital, telephoned the medical record department there, where the chart was pulled and the discharge summary read to him. At this time it was discovered there had been a second admission two years after the first, wherein a routine follow-up barium enema revealed a number of filling defects. He was hospitalized at that time under a gastroenterologist, Dr. 13. who had biopsied the areas and found villous adenomas. A right infra-hilar mass was found on chest x-ray, however, and bronchoscopy by Dr. 13a., a pulmonologist, had revealed a grade 2 adenocarcinoma, which was considered microscopically identical to the sigmoid carcinoma removed two years previously. Dr. 11. now contacted Dr. 13. by telephone confirming these data and learning that oral 5-fluorouracil had subsequently been administered by Dr. 1. with subsequent shrinkage of the lung mass.

Mr. A. remained stable on Saturday. Dr. 12. felt that bronchoscopy would be hazardous with the abnormal coagulation studies and all agreed that the lesion was now most likely a recurrence of the metastatic adenocarcinoma in the right hilum. On Sunday, Dr. 14. (medical oncologist) saw the patient in consultation, suggesting fresh frozen plasma and platelet transfusions if bronchoscopy was to be pursued. Bronchoscopy was disadvised at this time, however. Discussions were held with the patient and family

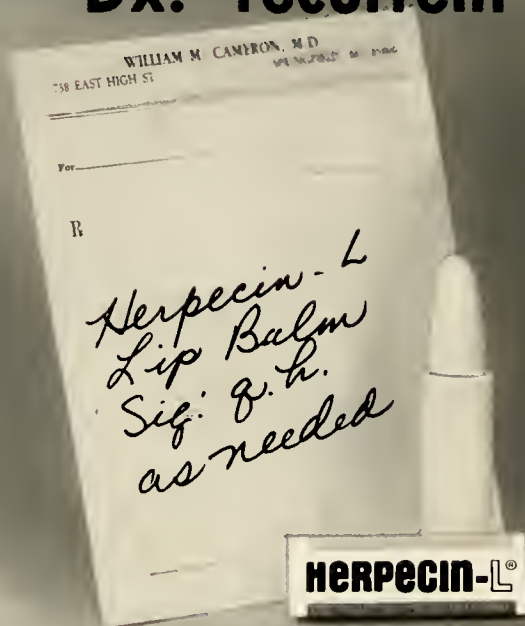
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by Dr. 7. and it was mutually decided and supported that "do not resuscitate" orders be instituted. This was accomplished although cardiac arrest was not anticipated. Unexpectedly at 4:30 a.m. on Monday, the patient experienced a

cardiac arrest and expired. Postmortem examination was not obtained.

Fourteen physicians were directly or indirectly involved in this patient's 72 hour acute illness.

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Ethical Quandaries for the Present Day Medical Institution

Eben Alexander, M.D.

- *Physicians seeking to do no harm in today's complex medical institution need special leadership to guide them through the ethical mazes that confront them.*

IT IS no great revelation that life is becoming more complex and more expensive. It costs more to heal people, to kill people in warfare, to educate people, and to feed people. All of these increasingly complex areas have created special problems and ethical considerations, but probably none more so than our own area — the care of the sick and the preservation of health.

It was not until about 1913 that a patient could visit a physician and have a better than fifty-fifty chance of being improved thereby. Since then, the tools, the drugs, the diagnostic methods, and the uniformity of medical training have improved so greatly that it is a rare patient who cannot expect some relief from such a visit. However, that patient can also be hurt by ill-advised treatment, and therein lies some of the problem.

I read in the *Chicago Tribune* recently that the horseless carriage had just about gotten rid of chivalry (and virginity); that nuclear arms had just about gotten rid of war; and that air conditioning was about to ruin the Old South. Of course the writer was referring to the fact that air conditioning has made the climate bearable enough that people are moving south in increasing numbers and bringing with them ethnic and regional characteristics that dilute and change the character of our area. Whether those changes are ruinous or not is debatable, and is not relevant here. I use the story to illustrate how technological advances force change on a society. In the field of medicine the rapid advances in technology that have changed the character of medicine have brought with them inordinately complex ethical considerations.

I have been told that the philosophical study of ethics in our higher educational institutions had hit a "slough of despond" until medical ethics came along to enliven it — and certainly it has been enlivened.

I know some of what the ethicists say about the complex issues imposed on medicine by modern technology, and it is obvious that they view with disdain the "unsophisticated" physician struggling with ethical decisions on a day-to-day basis. That disdain leads them to discuss ethics in philosophical terms difficult to understand. Their lan-

guage is about as understandable to us as that we use is to the patient who is told that he is going to have "a craniotomy for a cerebellar spongioblastoma" — or "receive 3025 rets of Cobalt-60 through a lateral portal." When we physicians clothe our expertise in the complexity of our language, we do not help our patients to understand their condition, just as the ethicists do not help us with day-to-day decisions unless they can state the problems in day-to-day language. Until that time comes, we have to stumble along on our own.

Medical care was simpler before the tremendous advances in technology and therapeutic drugs took place, advances that enable us to prolong life under circumstances that may or may not be of value to the patient. When and how to use these advances become increasingly difficult decisions to make as more of them become available, and it becomes increasingly difficult to remember the injunction that should always be applied in medical practice — "First of all, to do no harm."

We can all feel comfortable with that particular injunction, but how best to adhere to it is not always clear. I have found two guides to be very useful: 1) the patient's rights must always be respected; and 2) when values differ, the patient usually should be taken care of according to his, not the physician's, values. Social and economic factors affect all of these ethical decisions, but if they become the most weighty factors they will surely distort our ethical approach to medical care.

The physician must constantly be aware that he serves as the patient's advocate. No one else is trained to do it as well; no one else has a professional tradition in that role; no one else believes himself or herself as willing to do it. As patient advocate, however, the physician will invariably sometimes find himself at odds with the institution of which he is a part.

Institutional ethical quandaries in the care of the patient are of such quantity that we can only touch on a few of them. Warshauer recently discussed one aspect of the problem when he addressed the possible conflicts between medical and religious institutions.¹ He applied the term "medical institution" to the philosophy of the practice of medicine; throughout this paper I use the term in the sense of a medical center or hospital complex. Institutions that provide medical care are as necessary to our continued

From the Section on Neurosurgery, Department of Surgery, Wake Forest University Medical Center, Bowman Gray School of Medicine, Winston-Salem 27103.

existence as a civilization as are our schools, our police departments, and our fire departments. The problem is how to help medical institutions keep the proper perspective. The word "institution," in the sense of a facility and those who run it, unfortunately implies a cold, unfeeling organization seeking primarily its own welfare and survival. Since the physician has been affiliated with a medical institution from medical school onward and is an essential part of a medical institution, he or she is probably better able to judge what that institution can and should do on behalf of the patients, and those things that it should not do. This "inside" knowledge demands that physicians be "as wise as serpents and harmless as doves" (Matthew 10:16).

Nothing in what I have just said should be taken to imply that all those who run organizations providing patient care are unfeeling persons or are unappreciative of the needs of the patients. However, by the nature of their positions, their interests are primarily in the stability, the future, and, in some instances, the very survival of their institutions.

The cost of modern medical technology is so great that certain procedures can only be done if an institution elects to support their use. One institution may transplant baboon hearts into certain babies with congenital heart problems. Another institution may decide to invest the millions of dollars necessary to implant mechanical hearts in certain adults with heart disease. Still another institution may decide that heart transplantation is not sufficiently advanced for the institution to participate in it and, even though the institution's staff may have the highest technical ability of any institution in the country, it may choose to take another direction.

These examples of experimental problems have profound ethical connotations for a committee of trustees, for a committee of medical staff, and for an ethics committee. Let us look at some more practical examples.

Despite the relatively generous federal support for the 70,000+ people in the United States now on renal dialysis, some institutions may decide to forego dialysis for end-stage renal disease. As a consequence, those institutions may have to agree not to participate in renal transplantation either, despite the fact the renal transplantation, while not without problems, has given victims of end-stage renal disease a gratifying quality and prolongation of life.

Or, an institution may elect not to have an intensive care nursery to take care of premature babies or newborn babies with congenital anomalies. The level of expertise now available to these children complicates that decision. If in 1960 the decision had not been made to resuscitate any neonate weighing under 1000 grams, the expertise that has been developed since would be no further along now than it was then. However, with that expertise, the 1000-gram neonate now has a good chance of survival and a normal life expectancy.

It is necessary sometimes to invest in some of the advances of medicine simply because of the increasingly impressive experience that has been gained. The reduction of mortality after coronary artery bypass operations from 18% to 1.5%, and to even less in selected groups of patients, is a very marked improvement. The testimony of numerous patients who have been relieved of unstable angina by the procedure and who feel that they have had

their lives prolonged provides increasing vocal support for the procedure.

Plasmapheresis is a complex procedure that is being used for diseases thought to have immunologic connotations, such as myasthenia gravis and multiple sclerosis. It is new, and it is expensive. However, it, and other such new and experimental procedures, should continue to be used if they appear to be effective. They will continue to be expensive, and will continue to be supported only if physicians intelligently and articulately justify their use, whether at the experimental stage or only after their therapeutic benefit has been proved.

No longer can a single institution offer all services to all people. When should expensive, complex, experimental machines and procedures be covered by the institution's own funds? How does the physician maintain his traditional role as patient advocate when the institution faces the difficult choices of what patients to admit, what services to offer, and what research to follow?

No institution can expect to anticipate all the needs of the future or expect always to make the right decisions. Reliance must therefore be placed on the expertise, the vision, and the understanding of physicians within the institution. The danger of not being able to continue to improve patient care is great, and will be prevented only by the continued efforts of all involved. The ethical quandaries of medical progress dictate that physicians, while remaining patient advocates, involve themselves also in institutional politics, management and financial problems, and the equitable delivery of medical care.

I was privileged to be a professor of neurosurgery in a church-related institution with a strong religious base, a strong pastoral care program, and ministers of all faiths who were interested in cooperating with the institution and its physicians to assure the optimal care of patients. Over my 20 years as the Chief of Professional Services I learned some valuable concepts. I did not learn the ultimate answer to the ethical quandaries facing medical institutions, but I learned the following relevant facts:

I learned that an institution is only as good as the people who run it, and therefore it is important to assure that the right people are in charge.

I learned that a good name and a good reputation alone are not sufficient to keep even the best institution on the right track.

I learned that good working relationships need to be achieved at all levels by physicians working in institutions and only in that way can the physicians be of value in solving ethical questions and be assured of having the tools with which to work for the future.

In conclusion, I learned that the best patient care is provided and many of the ethical quandaries are diminished whenever compassion, understanding, technical skill, the best possible tools, recognition of patient and family roles, the best ancillary services, and the best trained physicians and administrators are combined in a balanced potpourri of what we know as a medical institution.

References

1. Warshawer AD. Thoughts on the beliefs of religious and medical institutions. *NC Med J* 1985;46:29-32.

On the Importance of Small Things

Douglas S. Diekema, M.D.

• *This is an address delivered by Dr. Diekema, Co-President of the class of 1985, at Commencement Exercises at the University of North Carolina School of Medicine, May 12, 1985.*

ON this, the day of our medical school commencement, we find ourselves entering a profession which has been engulfed by the big things of this world . . . big technology, big business, big finance, big research, big politics. The era of the small town solo practitioner, we're told, is over. We now live in the age of the medical-industrial complex, the health maintenance organization and the CT scanner. We enter medicine during a period of uncertainty — uncertainty as to which direction it will go and where it will end up. Seemingly, we are on a sharp turn, unable to discern what lies ahead.

Three years ago the Merrimon lecturer Arnold Relman, editor of the *New England Journal of Medicine*, predicted: "If we cling to our present course, I am convinced that the independence and ethical base of our profession will be progressively eroded and the practice of medicine will continue to evolve into commerce."¹ Lewis Thomas has had similar thoughts. Says he: "If I were a medical student or intern, just getting ready to begin, I would be apprehensive that my real job, caring for sick people, might soon be taken away, leaving me with the quite different occupation of looking after machines."²

We, as the future practitioners of medicine, can no longer ignore these forces. We must respond to the challenge of shaping the course of medicine. And in this age of big things, I would like to propose a starting place. I would like to make a plea for the importance of small things. In an age where one gains recognition by developing artificial hearts or implanting a baboon heart into a dying baby, I want to propose that we proceed into the profession of medicine bearing a new set of values. I propose that we debunk those that rule medicine today — the values that state that only the big things are worthy of recognition; that measure success in terms of money, power and recognition; that give precedence to technology over human warmth.

Our real influence in patient care comes through the small things. No CT scanner will ever be as powerful as abdominal palpation in its ability to soothe the patient. For the human touch implies caring. The lingering of the physician's fingers on the patient's wrist after taking the pulse carries a message of concern and support. No drug can ever replace that human concern.

I would contend that the real heroes of medicine are not the William DeVrieses of the world. They get their rewards

in recognition and financial gain. The true heroes are those who give of themselves — give of their joy, their interest, their understanding, their humor, their time, their concern. It is the harried pediatric resident who has yet to do three new patient work-ups, two IVs, and one Gram's stain who takes a few moments anyway to stop and play with a frightened six-year-old — an act that will never be reported in any newspaper, but the effect of which will live forever in that child. It's also the busy family doctor who spends an extra thirty minutes in the nursing home holding the hand of his eighty-seven-year-old patient, sharing her struggle with the ever-present reality of death.

Indeed, the true greatness of our profession is not to be found in newsworthy medical breakthroughs, but rather in these small everyday acts — the warm caring touch, the look of concern, the calming word, and the listening ear.

As individuals we need not change everything we see that is wrong. We need only find our small place in the scheme of things and then do something in behalf of a better world. We don't need to change all of medicine, just those small things we encounter daily which might help make someone's day a bit brighter. In her moving book, *A Parting Gift*, Dr. Frances Sharkey describes her last days with a dying eight-year-old leukemic patient: "I couldn't save him, and I couldn't tell him what death was like. But I could rub his back. . . . There is no such thing as a perfect moment. We make all our moments, and by the truth and love we bring to them, we make them perfect."³

Our technology may fail, our medicine may cease to heal and our laboratory tests may tell us the diagnosis is terminal. At that point, only love remains: our ability to act compassionately, ease the pain, decrease the loneliness. As long as we are willing, the human element we bring to medicine will remain our most potent therapeutic agent.

The poems of Emily Dickinson contain much wisdom. She too recognized the importance of serving in small ways when she wrote:

If I can stop one heart from breaking,
I shall not live in vain;
If I can ease one life the aching,
Or cool one pain,
Or help one fainting robin
Unto his nest again,
I shall not live in vain.⁴

This commencement indeed represents a big step for all

From 234 McCauley Street, Chapel Hill 27514.

of us. But finally, even as we savor this moment, let's not forget the importance of the other small things in our lives — those people and things which are prone to be neglected at the expense of our "higher" goals. So relish the moment of becoming an M.D. for a while. But when you go home tonight, after you've tucked the kids into bed and kissed them goodnight, go back outside. Stop on the porch and breathe the fresh night air. Savor the fragrance of roses in the yard. Spend some time watching the squirrels as they play their balancing games in the branches above you. Call for the dog and watch him bound up with wagging tail and dancing tongue. Think about the richness these small things have added to your life. Wander back inside. Read some

poetry. Tell your spouse you love him or her. Better yet, show your love by doing the dishes. Take some time to laugh together.

The small things in life. Let us never forget them, lest we forget life itself. My wish for all of us is that we may find joy in those things that do not make the news.

References

1. Relman AS. Merrimon lecture. Chapel Hill, University of North Carolina, October 19, 1982.
2. Thomas L. *The Youngest Science*. New York: Viking Press, 1983.
3. Sharkey F. *A Parting Gift*. New York: St. Martin's Press, 1982.
4. Dickinson E. "Not in Vain," as reprinted in *One Hundred and One Famous Poems*, Roy Cook, editor. Chicago: Contemporary Books, Inc., 1958.

George M. Cooper, Jr., M.D. (1919-1984)

In the life of a young man the most essential thing for happiness is the gift of friendship.

Henry Cushing, *Life of Sir William Osler*

... It's a lot more than who he was; it's what he was. George Cooper, that is.

Sure, he was a physician, and was ranked with the best, both as a clinician and as a consultant. But he was also someone's son, someone's brother, a very special someone's husband, and one very fortunate young man's father. He was a civic and community-minded churchman, a man of God. He was a friend to many.

He was my friend; he was as close to me at times as breathing. Our senses of humor were nearly always synchronized. "The pun is the lowest form of humor," some say, but he loved 'em. When George cleared his throat to tell a story, and cleared a couple more times in the telling of it, you could be sure it would be good. Not always printable, as A.C. and Al will attest, but always entertaining.

Coop loved to play cribbage, and was skillful as well as lucky. He was good at cards; the only one I've met better than I, but he definitely was. We played together for over twenty years. Considering the many gaps his absence has created for so many, this will seem trivial to

most. Nevertheless, he will be missed by some when the cards are shuffled and dealt and there is no hand for him.

He was part sandy beach, part cool mountain stream. He was all gentlemen, knowing what to do, how to do it, and when it was appropriate. He loved to win, but knew how to lose and maintain his poise. He "took turns winning" with his colleagues at work.

George was part camera, part film, and when he focused himself and his instrument, mountain streams gurgled and missiles roared heavenward from their pads.

He loved music, especially classical, but also natural. He recorded the crash of Atlantic waves on New England's shore as surely and as accurately as any tape recorder could.

... And on and on it could go, but by now the message is obvious. There will never be another like him, and we miss him. ...

W. H. Bland, M.D.
1000 Vickie Drive
Cary 27511

Distribution of Women and Minority Physicians in North Carolina

Mary Anne Salmon and Jane Stein

- *Women physicians are not, and minority physicians are, improving equity of access to medical care across North Carolina.*

NORTH CAROLINA physicians¹ are not distributed across the state in a manner comparable to the general population distribution. They are proportionately over-represented in the Piedmont and under-represented in the Coastal Plain while their numbers in the mountainous counties are approximately proportionate to the population. This distribution largely reflects the location choices of white, male physicians who constituted 85.8 percent of North Carolina's active, nonfederal physician population in 1982.² Does this same distribution apply to female and minority physicians or are their practices moving North Carolina closer to equitable access among the three regions of the state?

Data on the sex, race, and county of practice³ for all licensed physicians, available from the Health Manpower statistics files of the University of North Carolina's Health Services Research Center, were used to construct figures 1-4. The racial category "Asian" in figures 3 and 4 includes physicians who reported themselves as "American Indian," "Oriental or Asian," "Spanish Origin" or "other" on their application for registration. Population data in figure 5 were taken from published data of the State Center for Health Statistics.⁴ The assignment of counties to one of the three regions was made on the basis of a major terrain region map of the state,⁵ and is shown in figure 6.

North Carolina's female physicians are more geographically concentrated than their male counterparts. Nearly three quarters of them practice in the Piedmont, and more than half of those in the Piedmont practice in the three Research Triangle counties — Durham, Orange and Wake. This concentration may be related to the different practice patterns of female physicians. Whether by choice or because of restricted opportunity, women physicians are somewhat less likely than men to be in solo, self-employed practice and much less likely to be in partnerships and group practices. Less than half of North Carolina's women physicians are in one of these practice types compared with over 72 percent of the male physicians.⁶ The Research Triangle with its universities, medical schools and state

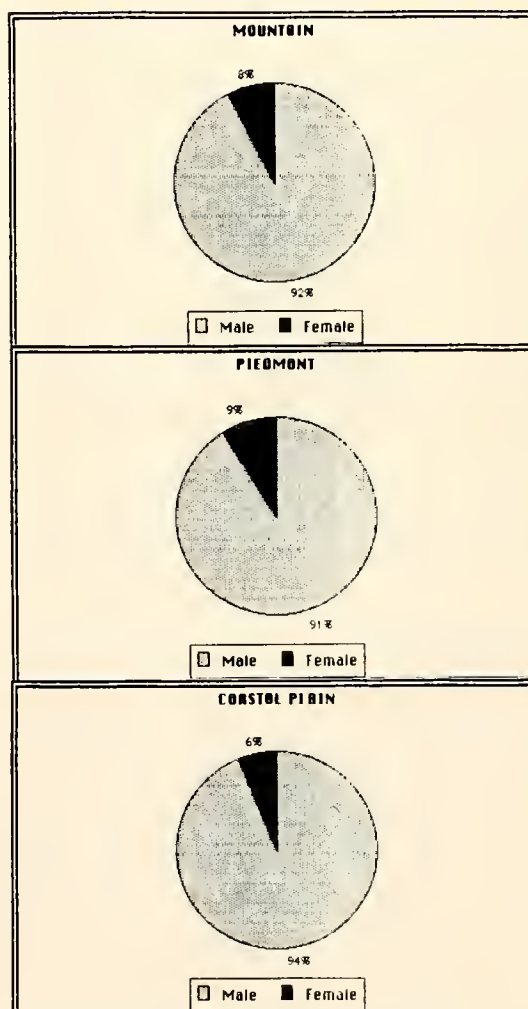


Figure 1. Proportion of physicians, by gender, for the three regions of North Carolina, 1982.

From the Health Services Research Center, Chase Hall 132-A, University of North Carolina, Chapel Hill 27514.

government provides opportunities in those areas outside of private practice where women physicians are more likely to be employed. Women doctors are only a little less likely than men to work in the mountains and in the major cities outside the Triangle but are considerably less likely to work in the Coastal Plain or in Piedmont counties that do not contain a city of 100,000 or more.⁷

While women doctors are more geographically concentrated than men, both black and Asian doctors are somewhat less concentrated in the Piedmont than white doctors. Still the majority practice in that region. Within the Piedmont the practice patterns of the two ethnic groups are quite different. Black physicians are over-represented in the counties that house the state's largest cities — Mecklenburg, Guilford and the Triangle — while more than half of Asian and other physicians practicing in the Piedmont are in the smaller, more rural counties.

Both black and Asian doctors are also more likely than whites to practice in the Coastal Plain where over a third of the population is not white and almost half of the state's non-white population lives. By contrast, they are very much under-represented in the mountains though the Asian doctors are more likely to practice there than are black doctors. It might be imagined that since the mountains are

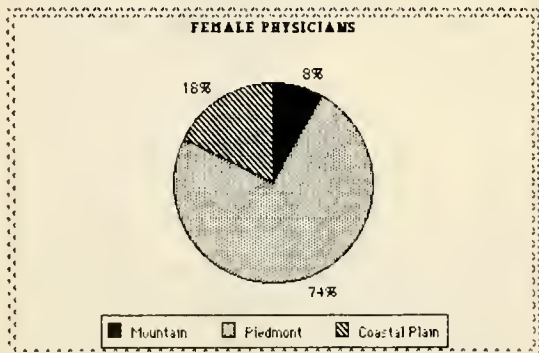
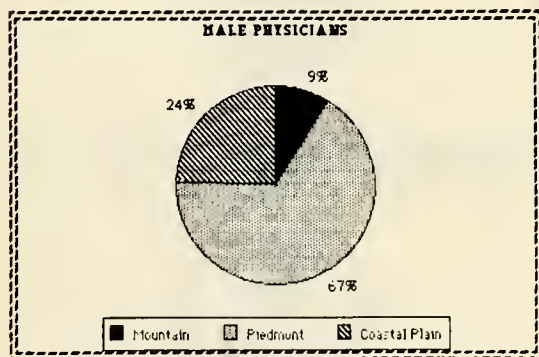


Figure 2. Regional distribution of physicians for each gender, North Carolina, 1982.

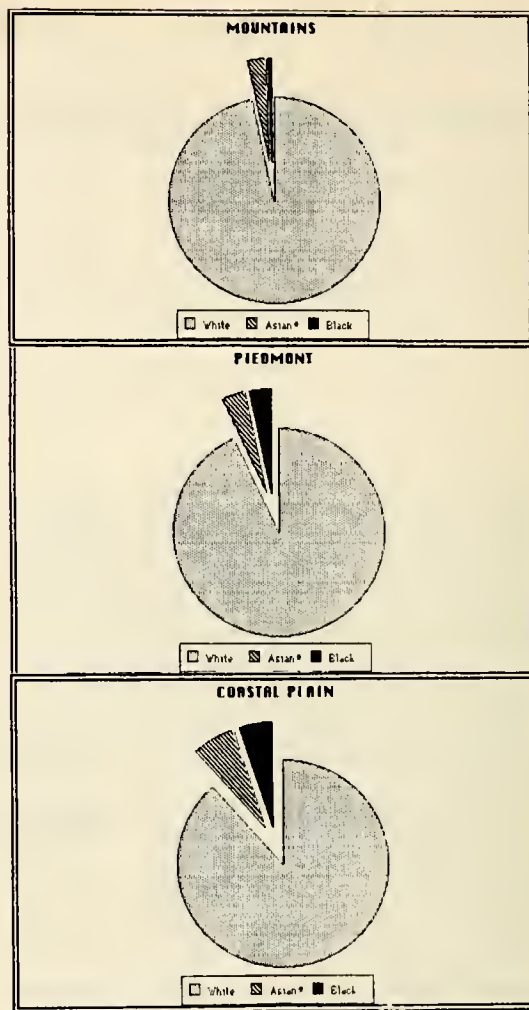


Figure 3. Proportion of physicians, by race, for the three regions of North Carolina, 1982. The category Asian is over 90% Asian, but also includes American Indian, Spanish origin, and "other."

home to most of the state's American Indian population that American Indians would account for some of the "others" in practice in the mountains. However only one of the state's seven (all male) non-federal American Indian physicians is in practice there.⁸ As in the remainder of the state, more than 90% of the "Asian" category of doctors in the mountains are, in fact, Asian.

From these data it can be seen that minority physicians are helping to reduce North Carolina's geographic inequity in access to physicians. However women physicians, 83.5 percent of whom are white, remain concentrated near the state's major medical centers.

Notes

1. This describes active, nonfederal physicians and does not include those currently

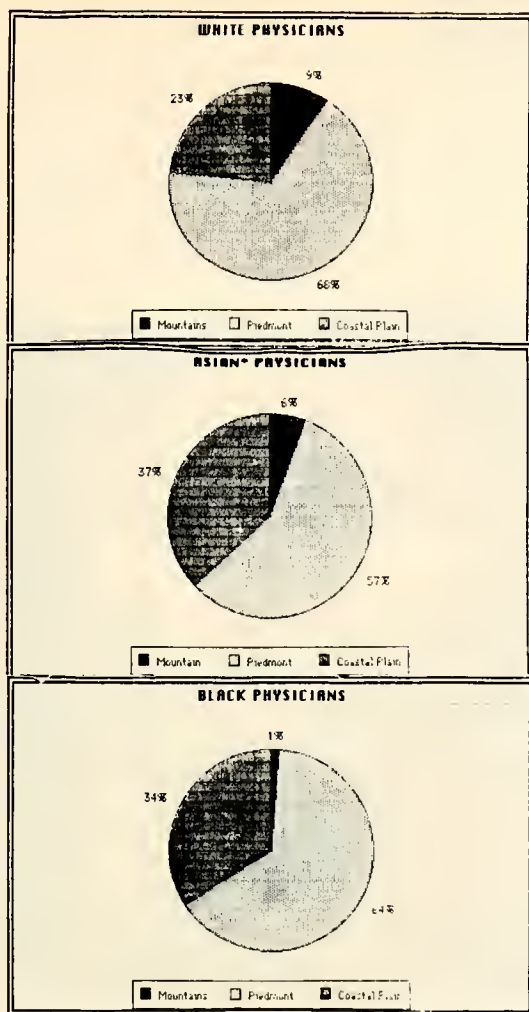


Figure 4. Regional distribution of physicians for each race, North Carolina, 1982. The category Asian is over 90% Asian, but also includes American Indian, Spanish origin and "other."

N.C. POPULATION 1982

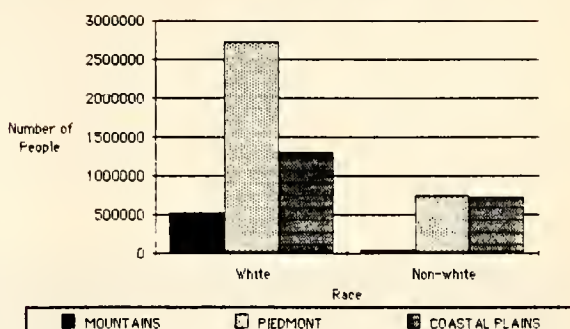


Figure 5. Regional distribution of North Carolina's population, by race, 1982.

- participating in a post-graduate medical education program in North Carolina — i.e. residents.
- Health Services Research Center. North Carolina Active Nonfederal Physicians, Specialties by State, County, HSA and AHEC, Effective, October 1982. Chapel Hill, North Carolina. Health Services Research Center, University of North Carolina at Chapel Hill, 1982.
 - Active physicians are assigned to county based on their business address. When business address is missing, home address is used.
 - State Center for Health Statistics. North Carolina Vital Statistics 1982. Volume 1: Births, Deaths, Population, Marriages, Divorce. Raleigh, North Carolina: Department of Human Resources, Division of Health Services. Office of Management Services, September 1983.
 - Lonsdale, R. E. et al. Atlas of North Carolina. Chapel Hill, The University of North Carolina Press, 1967, page 5.
- When a regional line passed through a county, that county was assigned to that region in which the greater part of the county lay. When a county was bisected by a regional line, it was assigned to the more eastern of the two regions.
- North Carolina Health Manpower File. Health Services Research Center.
 - Cities of 100,000 or more are Charlotte, Durham, Greensboro, Raleigh and Winston-Salem. County and City Data Book, 1983.
 - Doctors on Indian Reservations are federal employees. Hence this paper understates the number of American Indian physicians practicing in the mountains of North Carolina.

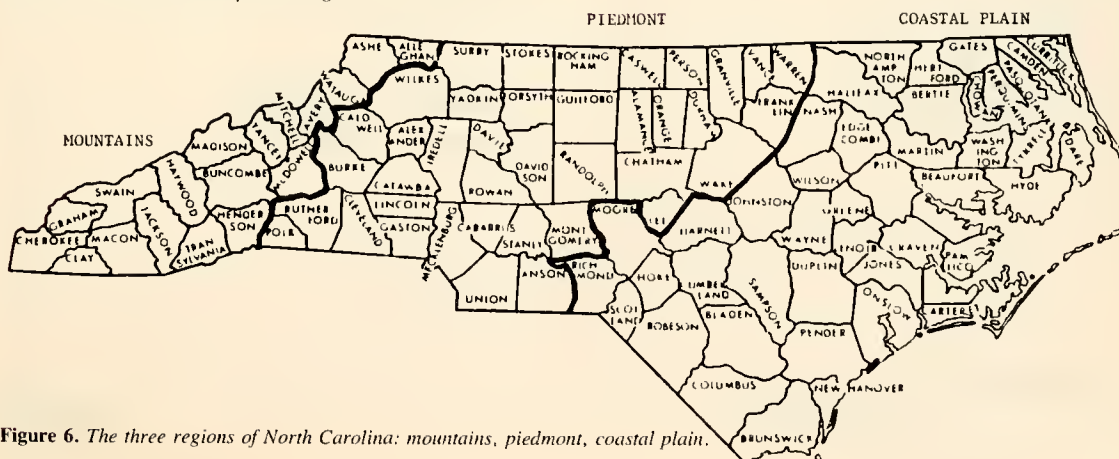
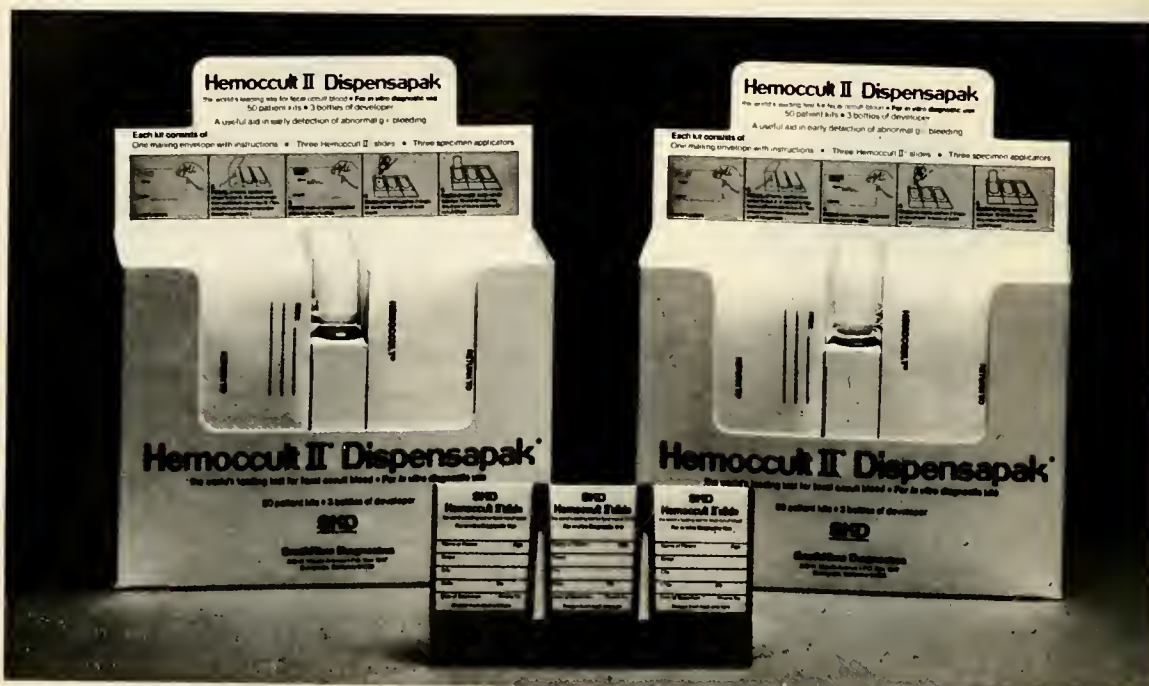


Figure 6. The three regions of North Carolina: mountains, piedmont, coastal plain.

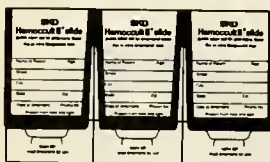
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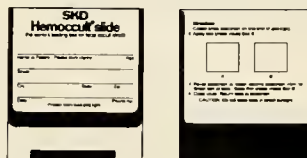
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President's Report to the North Carolina Medical Society

Linda P. Nance

I HAVE looked forward to this day, for I am excited to report to you that a tidal wave of action has rolled across North Carolina as auxiliaries have armed themselves to promote better health care, health education, health related legislation, and programs to combat social issues that undermine and destroy the health care which you work tirelessly to produce.

A successful child sexual abuse awareness program presented at the annual meeting was the necessary impetus for 30 county auxiliaries to present awareness programs for their members.

Armed with facts, auxiliaries have learned to discuss openly a subject we once pretended did not exist. Catawba county's leadership researched their community's needs and established a child abuse awareness program in their county's elementary schools with a goal to reach 8,000 students. Henderson, Cumberland, Gaston, Nash, Durham, and New Hanover-Pender counties offered outstanding awareness programs for their communities in coalition with many other agencies. Two of these counties offered week-long programs in which they promoted all aspects of child protection.

Through a grant from the Kate B. Reynolds Health Care Trust, video tapes of "Funny Tummy Feelings," a training program suitable for children in many settings which promotes awareness and prevention of child sexual abuse, was made available for training teaching volunteers. This program is available for any county auxiliary that wishes to use it. We hope this program will make children free from abuse, free to grow, free to develop, and free to become productive citizens.

Two smaller grants allowed us to print healthy living brochures and "Buckle Up" stickers. These have been distributed throughout the state to schools, at health fairs, and in physicians' offices. These carry the clear message that the North Carolina Medical Society Auxiliary wants to promote better health for its citizens.

At the direction of the Committee on Physicians' Health and Effectiveness, the auxiliary prepared, with the help of the medical society staff, a new *Helpline* brochure that better explains the purpose of this access line for physicians' families. This service, staffed by an auxiliary, has been successful in offering aid to members of physicians' families in need of support for impairment.

Auxiliaries have helped to distribute the Medical Society's *Living Will*. It has been introduced at state meetings, through *Tarheel Tandem*, the "President's Newsletter," and during presidential visits to counties. It has been used in conjunction with organ donor awareness programs, and the Gaston County Auxiliary distributed copies to all of the nursing homes in their community.

More members than ever before attended the state meetings at which participants were offered programs about not only child abuse and neglect, but prenatal and postnatal care, automobile safety restraints, anorexia nervosa and bulimia, legislation, orderly financial planning, and parliamentary procedure.

Through the outstanding efforts of county leaders and members, exciting health projects are underway. County auxiliaries are working in coalition with forty-six other organizations to promote "Shape Up For Life" health projects in their communities. There are awareness programs designed to combat drunk driving, drug abuse, and child abuse. The Lenoir-Greene Auxiliary was instrumental in establishing a MADD chapter for the county, and auxiliaries are active in programs for cancer rehabilitation, foster parenting, organ donor awareness, cancer detection, and prenatal and postnatal care. In addition to these programs, auxiliaries promote CPR training, distribute "Shape Up For Life" pamphlets, contribute time and money to hospice, support and staff hands-on health museums, and produce health fairs. This year \$81,000 was distributed to these projects through auxiliary efforts.

Mecklenburg County's endowment exceeded all expectations. It grew to \$250,000 ten months ahead of schedule. An advisory board, composed of major Charlotte personalities was formed and MMAE's Inn, a Ronald McDonald type house, had its grand opening April 29. New Hanover-Pender County's similar goal is in its early stages, but is gaining active support among the citizens of that community.

North Carolina auxiliaries raised over \$38,000 for the American Medical Association Education and Research Foundation through holiday sharing cards and other fund-raisers. To help assure that medical education is not limited to the wealthy, counties contributed \$3,800 to the state student loan fund. In addition, three percent of each member's dues was placed in this fund for North Carolinians enrolled in North Carolina's medical schools. Thirteen loans were made this year for a total of \$18,500. Plans are under way to secure even larger sums of money for loans in

the coming years.

Besides the student loan fund, counties have awarded \$24,000 to sixty students studying in allied health fields, and interest free loans to sixteen students have been made by several counties.

To assure that physicians will have a voice in the legislative process, counties have had outstanding participation in legislative programs and alerts. Twelve counties participated in the AMA's project *Medvote* in the fall of 1984. Auxiliary efforts made a difference in the voter turnout.

With so many outstanding projects and programs underway in the counties, the media has discovered this to be newsworthy. Buncombe, Cumberland, Guilford-High Point, Henderson, Nash and New Hanover-Pender counties thanked members of the media for their part in publicizing their many projects and programs with very successful

media days.

Physicians' spouses across North Carolina have proven that more things happen when waters are stirred than when they are still. They accepted the challenge to make a difference in their communities. Our numbers grew as we worked to keep the federation strong. Make certain that your spouse is a member so we can push our membership toward the 100% mark of participation. The AMA's original constitution, now more than a century old, stated its objectives thusly, "to promote the science and art of medicine and the betterment of public health." Only our best efforts and our support will assure that every American will continue to receive the best health care.

The North Carolina Medical Society Auxiliary is proud to be your partner in this cause.



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and there is drinking,
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President's Speech

Darlene Young

THIS year I am inviting you to SPREAD YOUR WINGS AND FLY! I hope that you will be open to new ideas, and ready to venture into new areas of concern. I believe that you can accomplish almost anything if you really believe in it.

Linda Nance and the sixty-one state presidents who preceded her have left a legacy of achievement of which we are all proud, but we cannot rest upon what has been done by our organization in the past. What matters now is what we hope to do in the future to build upon that foundation.

I believe that life is meant to be lived with joy, and that joy can be found through commitment and purpose. Dr. James T. Laney, President of Emory University, said in an address, "In each of your lives, there is the possibility of being drawn out of yourselves in those moments of ecstasy, of celebration, of participation in something that is noble and great and compelling, of service in a community in which your participation — by some alchemy that escapes our full comprehension — will give you not only a sense of reward but of joy."

I believe that we find purpose for our lives through service to others. This is a reward that our physician spouses have long enjoyed. To quote a familiar saying, "Service is the rent we pay for the space we occupy here on this Earth." Well, the auxiliary offers many opportunities for service. All we need is your interest and enthusiasm.

My major focus this year will be on day care for children. North Carolina has the largest percentage of working mothers in the nation. This is a serious problem for our state, and one of which we must be aware. Other areas of emphasis for the year will include: osteoporosis, teen alcohol abuse, day care for the elderly, problems of young adolescents, and malpractice support groups. Material on these subjects will be presented at the Fall Conference and the Mid-Winter Conference. We never drop viable programs from the past but each year we offer resource material in additional areas of concern so that the Auxiliary will always be in the forefront of current needs and trends. I hope that some part of the program material presented this year will inspire you to action.

The Auxiliary also offers excellent opportunities for leadership training. To paraphrase the television jingle, "Be all that you can be, you can do it in Auxiliary." Many who are active in Auxiliary go on to become leaders in community and state organizations. It's there if only you will take advantage of it.

Lately, there seems to be a pervasive negative feeling among many in the medical community. We often feel that the world is changing, and not necessarily for the better. We wish that life would just stand still for a while, but it won't. If things aren't going your way, you can just sit back and fuss and let life happen to you, or you can try to change things for the better. Individually or collectively, you can make a difference. You can work to improve health care in your community. You can act as a public relations advocate for your physician spouse. You can work diligently for legislation which will improve the quality of health care and the quality of life for all. Be a part of what we are trying to do. We need all of you and all of those who have not yet joined. Work hard on membership, not just local and state, but Federation membership, for there is increased clout in increased numbers.

As we start our work together this year, my prayer for you is found in a greeting written by Fra Giovanni in the thirteenth century.

"I salute you! There is nothing I can give you which you have not;

but there is much, that, while I cannot give, you can take. No heaven can come to us unless our hearts find rest in it today. Take Heaven.

No peace lies in the future which is not hidden in this present instant. Take Peace.

The gloom of the world is but a shadow; behind it, yet, within our reach is joy. Take Joy."

So, SPREAD YOUR WINGS AND FLY! Some of you may simply flutter from branch to branch, but at least you will have made a beginning. And, surely, some of you will soar like eagles, and that's a special blessing.

Bulletin Board

Continuing Medical Education

Please note: 1. The Continuing Medical Education Programs at Bowman Gray, Duke, East Carolina and UNC Schools of Medicine, Dorothea Dix, and Burroughs Wellcome Company are accredited by the American Medical Association. Therefore CME programs sponsored or cosponsored by these schools automatically qualify for AMA Category I credit toward the AMA's Physician Recognition Award, and for North Carolina Medical Society Category A credit. Where AAFP credit has been obtained, this also is indicated.

IN STATE

October 16

Oxygen Use — CO₂ Narcosis and Ventilator Use

Place: Sanford

Credit: 2 hours Category I AMA

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

October 19-20

Jungian Techniques of Analytic Hypnotherapy

Place: Chapel Hill

Credit: 12 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

October 29

Crisis — Then & Now

Place: Kinston

Info: Wayne Parker, MMIC, Box 27444, Raleigh 27611. 800/662-7917

November 1-2

Alcohol and Drug Abuse

Place: Chapel Hill

Credit: 10 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

November 1-2

Review of the Management of SIDS and Near-Miss SIDS

Place: Chapel Hill

Credit: 7 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC School of Medicine, Chapel Hill 27514. 919/962-2118

November 14-15

Clinical Teaching and Evaluation of Clinical Performance

Place: Chapel Hill

Credit: 12 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

November 20

Endocrinology for the Lifetime of the Female

Place: Sanford

Credit: 2 hours Category I AMA

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

December 5-7

Fourth Comprehensive Symposium on Breast Disease

Place: Winston-Salem

Credit: 16 hours Category I AMA

Fee: \$350.00

Info: Center for Medical Ultrasound, Bowman Gray, Winston-Salem 27103. 919/748-4505

December 5-7

Microcomputers in Medical Education

Place: Chapel Hill

Credit: 18 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

December 7

UNC Ophthalmology Resident's Day

Place: Chapel Hill

Info: Baird S. Grimson, M.D., 617 Clinical Sciences Building 229H, UNC, Chapel Hill 27514. 919/966-5296

December 12

Controversies in Transplantation

Place: Chapel Hill

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

December 18

New Uses of Calcium Channel Blockers

Place: Sanford

Info: R. S. Cline, M.D., Central Carolina Hospital, 1135 Carthage Street, Sanford 27330. 919/774-6518

OUT OF STATE

October 17-24

Review of Clinical Chemistry for Practicing Pathologists and Clinical Chemists

Place: San Diego, CA

Fee: \$315

Credit: 40 hours Category I AMA

Info: Office of CME, ECU School of Medicine, Box 7224, Greenville 27835-7224. 919/758-5200, ext. 208

October 29-November 2

Diagnostic Imaging

Place: Southampton, Bermuda

Fee: \$495

Credit: 25 hours Category I AMA

Info: Carl E. Ravin, M.D., Box 3808 DUMC, Durham 27710. 919/681-5268

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Studies in Process

UNC Investigators Study Drug for Treatment of Crohn's Disease

Drs. John Sessions and Eugene Bozyski of the Division of Digestive Diseases and Nutrition at the UNC School of Medicine are joining with clinical investigators at several other academic study centers in a clinical trial to evaluate Flagyl (metronidazole) as a therapeutic agent in patients with Crohn's disease (ileitis). The purpose of the study is to investigate the safety and efficacy of Flagyl as an alternative to prednisone and sulfasalazine. Recent trials have suggested that Flagyl is effective therapy for Crohn's disease.

Study participants will receive free medical care, a complete health evaluation, including determination of the extent and location of Crohn's disease, and study drugs for four months. Travel funds are available and parking will be paid. Patients who participated in the National Cooperative Crohn's Disease Study are eligible provided they meet the study criteria.

If you have a patient with moderately active Crohn's disease you would like to refer, we will be pleased to evaluate him/her for participation in the four-month study. During the study you will be kept informed of your patient's progress and upon completion of the study your patient will be returned to your care.

For further information, please contact either Dr. Sessions or Dr. Bozyski at 919/966-2511 or Alice Rupen, M.P.H., Crohn's Study Coordinator, at 919/966-5800.

Scans vs Angiograms in Pulmonary Embolism at Duke

The National Heart, Lung, and Blood Institute, through its Division of Lung Diseases, has initiated a multicenter study to determine the sensitivity and specificity of ventilation-perfusion scans compared with angiograms for the diagnosis of acute pulmonary embolism. The Duke University Medical Center, one of the six clinical centers participating in the study, is pleased to accept referrals.

The clinical diagnosis of pulmonary embolism is subject

to a great number of false positives and false negatives. Pulmonary angiography, although considered diagnostic when coupled with an appropriate clinical history, is invasive, expensive and not without risk, and it requires special equipment and highly trained personnel.

The second method of diagnosis is a combination of perfusion and ventilation scanning. Current practice interprets a negative perfusion scan as solid evidence against the presence of an embolus, although there has not been a large-scale study to assess the sensitivity and specificity of the method. Long term patient follow-up that would determine clinical outcome of patients who had negative perfusion scans has not been carried out.

This study is designed to provide scientific basis for decision-making about patients suspected of having pulmonary embolism. It will assess the accuracy of ventilation-perfusion scans in predicting angiographic findings. These data should improve the diagnostic certainty and management of patients with thromboembolic disease and reduce morbidity, mortality and costs associated with the condition.

Patients 18 years of age or older with suspected acute pulmonary embolism are eligible for the study. Participants will receive a ventilation-perfusion scan and those with evident abnormalities will undergo angiography within 24 hours of the scan. Appropriate care will be initiated for patients diagnosed as having pulmonary embolism. Follow-up procedures depend upon diagnostic results. Patients who undergo angiography will be contacted by telephone at specific intervals after entry into the study to determine their status. Individuals who had normal perfusion-ventilation scans and those who had negative angiograms will be asked to return to the center for a complete history and physical examination three months after the first procedure. Subsequently these individuals will be contacted by telephone at regular intervals.

For more information on the study protocol or to refer a patient into the study contact Herbert A. Saltzman, M.D., or Lee Mallatratt, Clinical Coordinator, at 919/684-4149.

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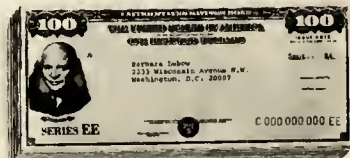
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This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

Contraindications: Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

Warnings: Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically serum K⁺ levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K⁺ intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

Precautions: The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of Orenium (triamterene, SK&F CO.) and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin (ACTH)). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function.

Thiazides may add to or potentiate the action of other antihypertensive drugs.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

Supplied: 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

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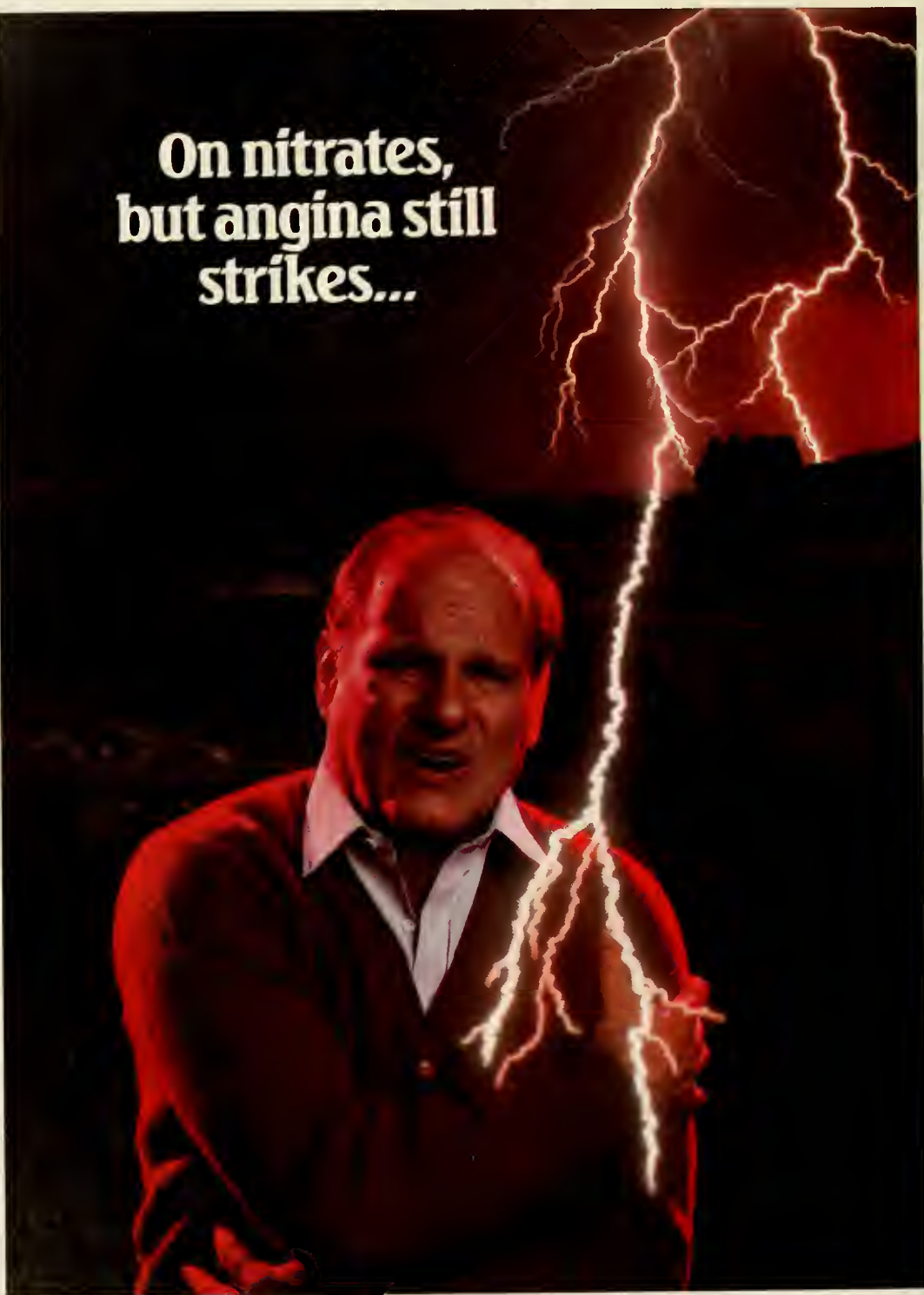
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Cardiovascular contraindications to the use of Isoptin are similar to those of beta blockers: severe left ventricular dysfunction, hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no artificial pacemaker is present) and second- or third-degree AV block.

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Contraindications: Severe left ventricular dysfunction (see Warnings), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker (See Precautions.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under Precautions.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment, however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g. W-P-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (HSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk; therefore, nursing should be discontinued during ISOPTIN use. **Adverse Reactions:** Hypotension (2.9%), peripheral edema (1.7%), AV block: 3rd degree (0.8%), bradycardia, HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported (See Warnings.) The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984



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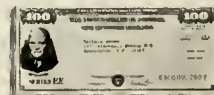
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Letters to the Editor

Joe Beard

To the Editor:

I was deeply moved by your tribute to Joe Beard (NCMJ 1985;46:303-9). He was a surgical resident at Vanderbilt when I entered medical school there, and while I was never privileged to know him personally, I admired him from afar.

The regular appearance and reading of the *North Carolina Medical Journal* helps this retiree feel he is not entirely out of the medical world and his favorite state. Your editorship is appreciated.

Alex X. Moffett, M.D.
70 W. Lucerne Circle
Orlando, FL 32801

Smokeless Tobacco: A Future Health Concern for North Carolina?

To the Editor:

Snuff dipping and tobacco chewing are habits that are rapidly gaining popularity in our country.¹ Moist snuff has increased domestic sales from 23.0 million pounds in 1978 to 37.1 million pounds in 1984 which is a 55% increase.² Sales for U.S. Tobacco more than quadrupled from 94.3 million dollars in 1973 to 443.7 million dollars in 1984. One publication claims there are 22 million users of smokeless tobacco in the United States.³ Another indication of the increase in dipping and chewing is evidenced by the rise of "chewing clubs" spawned by this new tobacco craze in high schools and colleges, complete with charters, membership cards and even t-shirts emblazoned with mottos like "Don't spit on me."³

According to the tobacco industry, the "typical" tobacco dipper or chewer involves a wide range of adult men and may come from any section of the country; but the Southeast, Southwest and Midwest are the primary markets.⁴ They claim that demand is greatest in the male 18 to 30 year-old group in these areas of the country. Currently, the tobacco industry is not actively promoting dipping and chewing for women.

Smokeless tobacco can produce significant detrimental effects on the soft and hard tissues of the mouth, including bad breath, discolored teeth, decreased ability to taste and smell, gum recession, advanced periodontal destruction of the soft and hard tissues, leukoedema and erythema of the soft tissue, leukoplakia, and for long-term users, cancers.^{1, 5} Fortunately, the possibility of cancer at this time appears relatively low; however, a careful review of the North American medical and dental literature disclosed 646 documented cases of oral, pharyngeal, or laryngeal cancer which have been linked to smokeless tobacco.⁶ Jayant et al suggested that the relative risk of developing oral cancer is 2.82 for smokers and 5.98 for chewers.⁷ A case-control study of 255 women with oral and pharyngeal cancer and 503 women control subjects in North Carolina

by Winn et al reported a fifty-fold increased risk of cancer of the gum and buccal mucosa in snuff-dipping, and relative risk of 4.2 percent for all mouth cancers in these women.⁸ A 1985 prevalence study in Pitt County, North Carolina revealed approximately 15 percent of the adult population residing in the county use smokeless tobacco, which translates into approximately 14,550 users (unpublished observations).

Due to the time lag of use and manifestation of cancer, experts fear an epidemic of mouth cancer in 40 years. This fear is reflected in the latest of several demonstrations of concern:

- Rep. Tom Tauke (R-Iowa) introduced a bill that would tax smokeless tobacco.
- Rep. Mike Synar (D-Oklahoma) introduced a bill that would require warning labels on all smokeless tobacco and advertisements.
- Rep. Samuel Stratton (D-New York) introduced a bill that prohibits the advertising of smokeless tobacco (all tobacco) on any medium of electronic communication.
- Rep. Cardiss Collins (D-Illinois) introduced a bill that would set aside funds to educate youth regarding smokeless tobacco.
- On July 11, 1985, Massachusetts became the first state to require health warning labels on a smokeless tobacco product — moist snuff.
- Warning label bills are being considered in Delaware, Illinois, Michigan, New Jersey, New York, Oregon, Pennsylvania and Utah.
- In June, Surgeon General C. Everett Koop appointed a panel of scientists to review the health hazards of these products.
- Betty Ann Marsee of Ada, Oklahoma, charged in a \$147.8 million suit against U.S. Tobacco Co. that her 19-year-old son Sean died in 1984 of tongue cancer from snuff use. The trial is scheduled for November 1985.

Considering the adverse health consequences associated with smokeless tobacco, the potential addictiveness of smokeless tobacco, the high prevalence of smokeless tobacco use in North Carolina and the potential health benefits accruing from smokeless tobacco cessation, or never initiating the habit, and based on my expertise in the area of smokeless tobacco I recommend and support that physicians in North Carolina consider the following:

- 1) the implementation of a warning label on smokeless tobacco containers;
- 2) the development of a smokeless tobacco cessation model for those currently addicted;
- 3) the support of health education in the public schools regarding the dangers associated with the use of smokeless tobacco — this education should begin early, when children are 7 and 8 years old; and
- 4) the enforcement of laws restricting minors from purchasing/selling smokeless tobacco products.

References

1. Christen AG. The case against smokeless tobacco: Five facts for the health professional to consider. *J Am Dent Assoc* 1980;101:464-9.
2. United States Department of Agriculture, 1984.
3. Harper S. In tobacco, when there's smokeless fire. *Advertising Age*, June 23, 1980.
4. News article and interview with four tobacco executives. Pinkerton's fortunes rise with social acceptance of chewing. *US Tobacco J*, May 29, 1980.
5. Silverman S. Oral Cancer, American Cancer Society; 6-35, 1981.
6. Glover ED, Christen AG, Henderson AH. Smokeless tobacco and the adolescent male. *J Early Adolescence* 1982;2:1-13.
7. Jayant K, Balakrishnan V, Sanghvi LD, et al. Quantification of the role of smoking and chewing tobacco in oral, pharyngeal, and oesophageal cancers. *Br J Cancer* 1977;35:232-5.
8. Winn DM, Blot WJ, Shy CM, et al. Snuff dipping and oral cancer among women in the southern United States. *New Eng J Med* 1981;304:745-9.

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Balloons on the CCU

To the Editor:

We would like your permission to reproduce in our new magazine, *MediScene*, your article entitled "Balloons on the CCU" by Charles Shunior, BSN, which appeared in April 1985 (NCMJ 1985;46:197-8).

This article would be reprinted in our pilot issue of *MediScene* which is a new magazine about medical care trends and is directed toward the public. We will be distributing the magazine to doctors for their offices.

Judy Marr, Editor
Michigan Medicine & Medigram
120 West Saginaw Street
East Lansing, MI 48823

Medical Mystery and the Whistle Blower: A letter to the author, Mebane Holloman Burgwyn

Dear Mebane,

Helen Dugan Allen, a classmate of yours, brought to my attention your article, "Medical Mystery and the Whistle Blower," which appeared in the *North Carolina Medical Journal* last September (NCMJ 1984;45:567-75).

I am so touched by your article that I would like to reprint it in the fall issue of *Alumni News*. I request permission to do so.

Your article is so personal and so revealing. What you have experienced will be of great value to our alumni readers. Bless you for demystifying chemotherapy in such an open manner — and with such good-hearted charm. I rejoice with you that the outcome of your treatment has been positive.

Miriam Holland
Editor, *Alumni News*
UNC, Greensboro
Greensboro 27412

Questionable Medical Advertising

To the Editor:

Dr. Maymandi, M.D., Chairman of the State Medical Committee on Ethics, has informed me that he has taken it upon himself to inform each one of you of an ad that

appeared three times in the Fayetteville newspaper, *The Fayetteville Times*, in Fayetteville, NC, concerning the opening of a mammography imaging center located at a Doctor's Urgent Care Centre facility in Fayetteville, NC. Although I do not have direct involvement at this time with the imaging center and did not have prior knowledge of this advertising modality, I am the Medical Director for Doctor's Urgent Care and feel that I must respond to the advertisement, as well as to Dr. Maymandi's letter to you.

It was, for me, a most unhappy experience to see this form of advertisement in the paper. I immediately contacted Mr. Sid Wolinsky, who is the President of Doctor's Urgent Care Centre, and informed him of my deep concern that the ad, with the schematic drawing of the lady, would appear to be in very poor taste and placed in the paper with poor judgment. Mr. Wolinsky immediately agreed and stated that he also had not had the opportunity of seeing this material before publication. We have had a board meeting concerning this advertisement, and our board has been equally unhappy. Unfortunately, because the advertisement does represent our imaging center, we must assume the responsibility. I would like to explain how this happened but realize that the blame must certainly be ours.

An excellent radiologist, Dr. Martin Locey, M.D., directs the new imaging center at a facility managed by Doctor's Urgent Care Centre. I personally know him to be one of the finest trained radiologists I've had the pleasure of meeting. As part of the imaging package, a mammography unit was established, and Dr. Locey has put together a patient educational program for self-examination with encouragement to seek annual examinations by their own physicians. This educational experience is accompanied by the newest mammography equipment available with the lowest yield of radiation. It was felt that this was a service needed in our community, as mammography had been offered by the only radiological team in the area at \$150.00 per examination. They have subsequently reduced their fee to \$75.00, and I can only feel that this was a result of the competitive nature of this center.

An advertisement agency was hired to announce to the public the establishment of the mammography clinic. They put together the advertisement that you have seen, and unfortunately, no one on the Doctor's Urgent Care Centre staff saw the ad prior to it being placed in the paper. Apparently, the business component division felt that the professional component was handling this, and the opposite also had been thought to be true, but apparently not so. When the ad came out, we did have our meeting, and it was requested to withdraw the ad from the paper. Unfortunately, the ad was going to be in a Sunday edition and that section of the paper had already been printed; therefore, it was unable to be withdrawn, so a second ad appeared. The advertisement company was contacted and told the ad was not felt to be appropriate, particularly the schematic drawing. The final insult to the situation was that the advertising people did change the schematic, but certainly not enough to make the ad tolerable, and their change went into the paper as the last and final advertisement.

This ad has been entirely and totally withdrawn from the paper, and I can assure you future publicity will be looked at closely by the medical staff of Doctor's Urgent Care

Centre. It is my hope that a better understanding of the center and the need for the center and who should and should not take advantage of this clinic will be spelled out in the information. In no way does the Doctor's Urgent Care Centre want to capitalize on any form of scare technique, but with breast cancer being such a significant illness in the female population, we wish to do all we can to aid in the early detection of the disease that may result in a higher percentage of cures.

We are extremely upset that this advertisement appeared, since it is our goal to address this clinic to the public in the most professional manner; and rest assured that the proper mechanism has been set in place to be certain that our advertising service follows accepted professional advertising standards.

Arlyn M. Moeller, M.D.
Medical Director
Doctor's Urgent Care Centre
Fayetteville 28304

Editors' response:

This is a good example of problems we'll be encountering in corporate medicine, when the left hand doesn't know what the right hand is doing.

On Asparagus

A number of years ago I shook the innermost circles of science with a scholarly study of the heritability of wool distribution patterns in the faces of Hampshire sheep. (From whence that beard?) Naturally, I was fascinated by the asparagus paper by Sugarman and Neelon in the June NCMJ (1985;46:332-5). Important questions deserve thoughtful study.

The authors make some interesting observations and suggest another question. Is the stirring up of lust a variable, and if so, how? Is excretion vs non-excretion or is perception vs non-perception the key? The composition of the study group suggests that some further objective as well as subjective observations are conceivable.

One of my colleagues at Granville County Hospital is a non-perceiver. I don't know about excretion, nor am I likely to find out.

William B. Tarry, Jr., M.D.
104 New College Street
Oxford 27565

Isolated ACTH Deficiency

To the Editor:

We were really interested by the report on ACTH deficiency published in your journal (NCMJ 1984;45:632-5) because we also work on the problems of hypocorticismus. The review provokes some questions which we want to discuss with you.

1. It seems to us that the title does not reflect the essence of the report. In fact the cases reported do not concern a real "isolated ACTH deficiency," but ACTH deficiency in general. The described clinical data are a result of different pathological processes, not only of an "isolated ACTH deficiency."

2. In the first case reported you describe a normal blood

level of ACTH and low cortisol. The authors accept an "isolated ACTH deficiency" only on the basis of a 3-day suprarenal stimulation, but there was not any stimulation test of the pituitary (hypoglycemia or vasopressin test). The authors would have been more successful in reporting the case if they had made one of the mentioned tests and had described the levels of ACTH and cortisol after the test. It is not sufficient to do only a 3-day ACTH stimulation to decide whether the adrenal deficiency is primary or secondary. We have had cases with primary suprarenal insufficiency who have increased the level of cortisol after a Synacthen stimulation. We think that computer tomography can also play a significant role in the diagnosis of the case.

3. In the reported case with subtotal gastrectomy, atrophic gastritis, syphilis and macrocytic anaemia there were results of the insulin stimulation test but there was not the ACTH level after the test. We suggest the following possible diagnosis:

a) A subtotal gastrectomy with atrophic gastritis and malabsorption syndrome and, as a result of this, insufficiency of the endocrine system as a whole with heavier damage in the function of the suprarenal glands and hypophysis. (Here the levels of FSH, LH, Prolactin, TTH, ACTH were not present.)

b) An atrophic gastritis due to an autoimmune mechanism, which has affected the suprarenal glands. (We need data about autoantibodies against different organs, especially against the suprarenal glands.)

c) Adrenal insufficiency as a result of the syphilis (directly or indirectly). To support this suggestion we need computer tomography.

4. In reported case 3 there is an autoimmune mechanism with a coexistence of pathological processes of the hypophysis, thyroid and suprarenal glands. Here it would be of great significance for the diagnosis to evaluate the lack or existence of antiadrenal autoantibodies in order to differentiate whether there is a primary or secondary hypocorticismus. Computer tomography would help in the diagnosis of this case.

Ivan Kretev
Tsvetanka Terzieva
Medical Academy
Sofia, Bulgaria

The authors respond

To the Editor:

Drs. Kretev and Terzieva have submitted an interesting letter.

1) The term "isolated ACTH deficiency" denotes a monotropic deficiency of the pituitary-hypothalamic secretion of ACTH. In other words, no other pituitary hormone is compromised. It does not imply that the deficiency will occur in the absence of any other illness. In addition to presenting many of the characteristic signs and symptoms of hypocorticismus, these patients can present with symptoms of any other associated illness.

2) The bases for the diagnosis of isolated ACTH deficiency in the first case were a) the low cortisol levels with simultaneous low normal ACTH levels. (In primary adre-

nal insufficiency there is low cortisol and high ACTH levels.) b) low 17 OH-cortisosteroids, urinary free cortisols and serum cortisol that increased stepwise during three days of intravenous ACTH stimulation.

We do not understand the claim of Drs. Kretey and Tersieva of having cases of "primary suprarenal insufficiency who have increased the level of cortisol after synacthen stimulation." This, by definition, would invalidate the diagnosis of primary adrenal insufficiency.

3) The different theoretical possibilities mentioned for patient No. 2 are doubtful because of the normal thyroid hormone, testosterone and prolactin levels. Again, one cannot postulate primary adrenal insufficiency in a patient who shows a normal cortisol response to ACTH. This together with failure to increase the cortisol level during symptomatic hypoglycemia has to be interpreted as a deficiency in ACTH secretion. It is possible that the underlying mechanism is an autoimmune one.

4) We agree that in case 3 there is an ongoing autoimmune process. We do not have definite proof that this autoimmune process involves any other organ than the thyroid. The presence of any adrenal antibodies would suggest an autoimmune attack to the adrenals, but would not be of help in deciding if the patient had primary or secondary adrenal insufficiency. This is a functional diagnosis. The ACTH stimulation, the insulin tolerance and metyrapone test all suggest that the hypocorticism is caused by ACTH deficiency.

Finally, we think that computerized tomography is an excellent technique to visualize the adrenals. Unfortunately it does not provide any information about the function of the adrenal glands.

Jorge J. Gonzalez, M.D.
Emil E. Werk, Jr., M.D.
New Hanover Memorial Hospital
Wilmington 28402

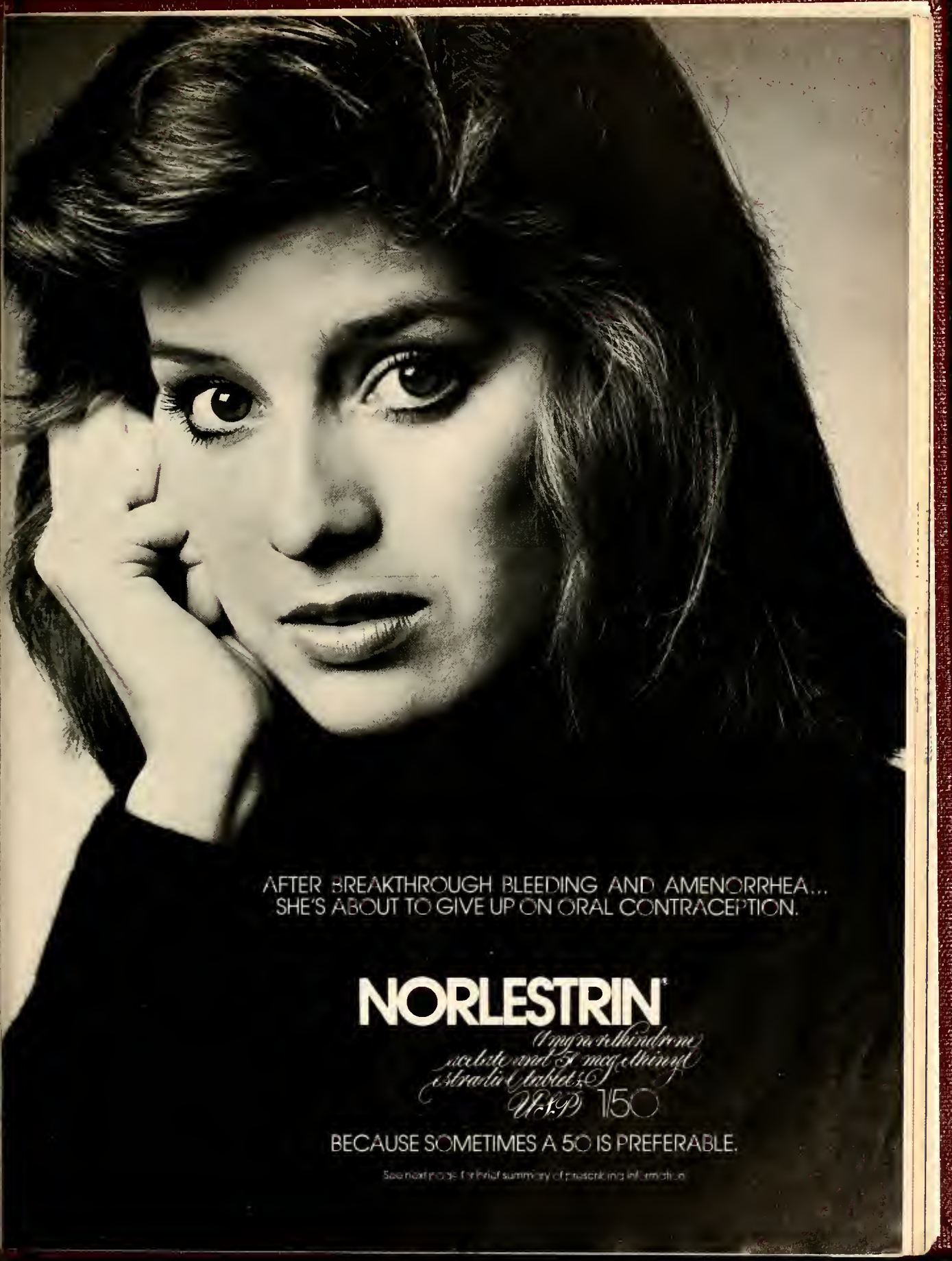
Ole Doc

Recently a fellow physician agreed that we have been privileged to practice through what seems to be the final days of the best days of the practice of medicine despite the many new developments in drugs and marvelous procedures. Nevertheless, reflecting upon this, these lines came to me:

His rickety buggy
Down the muddy road he rode
His patient's pain to ease
Now he has other things
To worry about
Not only patient
But family, lawyer,
Uncle Sam and PISRO to please.

There was a time when doctoring was more fun
When the horse, not the doctor, stayed on the run
When Ole Doc received thanks with respect
Even when his treatment failed
Twas still the horse — not Ole Doc —
Who got the whip to the tail.

John Fitzgerald, Jr., M.D.



AFTER BREAKTHROUGH BLEEDING AND AMENORRHEA...
SHE'S ABOUT TO GIVE UP ON ORAL CONTRACEPTION.

NORLESTRIN[®]
*(norgestrel and ethinyl estradiol tablets)
U.S.P. 150*

BECAUSE SOMETIMES A 50 IS PREFERABLE.

See next page for brief summary of prescribing information.

Brief Summary of Prescribing Information

NORLESTRIN® (norethindrone acetate and ethinyl estradiol tablets, USP)

See section under **Special Notes on Administration and HOW SUPPLIED.**

Before prescribing, please see full prescribing information. A Brief Summary follows

DESCRIPTION

Norlestrin Products are progestogen-estrogen combinations

INDICATIONS AND USAGE

Norlestrin Products are indicated for the prevention of pregnancy in women who elect to use oral contraceptives as a method of contraception

In clinical trials with Norlestrin 1/50 involving 25,983 therapy cycles, there was a pregnancy rate of 0.05 per 100 woman-years. In clinical trials with Norlestrin 2.5/50 involving 96,388 cycles, there was a pregnancy rate of 0.22 per 100 woman-years.

Oste-Related Risk of Thromboembolism from Oral Contraceptives: Studies have shown a positive association between the dose of estrogens in oral contraceptives and the risk of thromboembolism. It is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The oral contraceptive prescribed for any given patient should be that product which contains the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance

CONTRAINDICATIONS

1. Thrombophlebitis or thromboembolic disorders
2. A past history of deep-vein thrombophlebitis or thromboembolic disorders
3. Cerebral vascular or coronary artery disease
4. Known or suspected carcinoma of the breast
5. Known or suspected estrogen-dependent neoplasia
6. Undiagnosed abnormal genital bleeding
7. Known or suspected pregnancy (See WARNING No. 5)
8. Benign or malignant liver tumor which developed during the use of oral contraceptives or other estrogen-containing products

WARNINGS

Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. The risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.

The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks

1. **Thromboembolic Disorders and Other Vascular Problems:** An increased risk of thromboembolic and thrombotic disease associated with the use of oral contraceptives is well-established. Studies have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic

Cerebrovascular Disorders: In a collaborative study in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than nonusers, and the risk of thrombotic stroke was 4.0 to 9.5 times greater

Myocardial Infarction: An increased risk of myocardial infarction associated with oral contraceptives has been reported confirming a previously suspected association. These studies found that the greater the number of underlying risk factors (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preclampsia/tokemia) for coronary artery disease, the higher the risk of developing myocardial infarction, regardless of whether the patient was an oral contraceptive user or not. Oral contraceptives, however, were found to be a clear additional risk factor.

It has been estimated that users who do not smoke (smoking is considered a major predisposing condition to myocardial infarction) are about twice as likely to have a fatal myocardial infarction as nonusers who do not smoke. Oral contraceptive users who are smokers have about a fivefold increased risk of fatal infarction compared to users who do not smoke, but about a tenfold to twelvefold increased risk compared to nonusers who do not smoke. The amount of smoking is also an important factor.

Risk of Dose: In an analysis of data, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in oral contraceptives; however, the quantity of estrogen may not be the sole factor involved

Persistence of Risk: Two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of oral contraceptive use for cerebrovascular disease and 9 years for myocardial infarction. In addition, a prospective study suggested the persistence of risk for subarachnoid hemorrhage

Estimate of Excess Mortality from Circulatory Diseases: The risk of diseases of the circulatory system is concentrated in older women, in those with a long duration of use, and in cigarette smokers

A study of available data from a variety of sources concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of oral contraceptives in women over 40 who smoke

The risk of thromboembolic and thrombotic diseases associated with oral contraceptives increases with age, approximately age 30 and, for myocardial infarction, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preclampsia/tokemia, and especially by cigarette smoking

The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders. Should any occur or be suspected, the drug should be discontinued immediately

A fourfold to sixfold increased risk of postsurgery thromboembolic complications has been reported in users. If feasible, oral contraceptives should be discontinued at least four weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization

2. **Ocular Lesions:** Neuro-ocular lesions, such as optic neuritis or retinal thrombosis, have been associated with the use of oral contraceptives. Discontinue the oral contraceptive if there is unexplained sudden or gradual, partial or complete loss of vision, onset of proptosis or diplopia, papilledema, or retinal vascular lesions

3. **Carcinoma:** Long-term continuous administration of estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver

In humans, an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women has been reported. However, there is no evidence suggesting increased risk of endometrial cancer in users of conventional combination or progestogen-only oral contraceptives

Studies found no evidence of increase in breast cancer in women taking oral contraceptives, however an excess risk in users with documented benign breast disease was reported

There is no confirmed evidence of an increased risk of cancer associated with oral contraceptives. Close clinical surveillance of users is, nevertheless, essential. In cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer, or who have breast nodules, fibrocystic disease, or abnormal mammograms, should be monitored with particular care

4. **Hepatic Tumors:** Benign hepatic adenomas have been found to be associated with oral contraceptives. Because hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage, they should be considered in women presenting abdominal pain and tenderness, abdominal mass, or shock

A few cases of hepatocellular carcinoma have been reported in women taking oral contraceptives. The relationship of these drugs to this type of malignancy is not known at this time

5. **Usage in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring:** During early pregnancy female sex hormones may seriously damage the offspring

An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of oral contraceptives in pregnancy

There is some evidence that triploidy and possible other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing oral contraceptives

Pregnancy should be ruled out before continuing an oral contraceptive in any patient who has missed two consecutive menstrual periods. If the patient has not adhered to the sched-

ule, the possibility of pregnancy should be considered at the time of the first missed period, and oral contraceptives should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed

Women who discontinue oral contraceptives with the intent of becoming pregnant should use an alternate form of contraception for a period of time before attempting to conceive

Administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy

6. **Gallbladder Disease:** Studies report an increased risk of surgically confirmed gallbladder disease in users of oral contraceptives

7. **Carbohydrate and Lipid Metabolic Effects:** Because decreased glucose tolerance has been observed in a significant percentage of patients, prediabetic and diabetic patients should be carefully observed while receiving oral contraceptives

An increase in triglycerides and total phospholipids has been observed

8. **Elevated Blood Pressure:** An increase in blood pressure has been reported in patients receiving oral contraceptives. The prevalence in users increases with longer exposure. Age is also strongly correlated with development of hypertension. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure

9. **Headache:** Onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of oral contraceptives

10. **Bleeding Irregularities:** Breakthrough bleeding, spotting, and amenorrhea are frequent reasons for patients discontinuing oral contraceptives. In breakthrough bleeding nonfunctional causes should be borne in mind. In undiagnosed abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy

Women with a past history of oligomenorrhea or secondary amenorrhea, or young women without regular cycles should be advised that they may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of oral contraceptives

11. **Ectopic Pregnancy:** Ectopic as well as intrauterine pregnancy may occur in contraceptive failures

12. **Breast-Feeding:** Oral contraceptives may interfere with lactation. Furthermore, a small fraction of the hormonal agents in oral contraceptives has been identified in the milk of mothers receiving these drugs

PRECAUTIONS

Complete medical and family history should be taken prior to the initiation of oral contraceptives. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen, and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, oral contraceptives should not be prescribed for longer than one year without another examination

2. Preexisting uterine leiomyomata may increase in size

3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if a serious episode occurs

4. Oral contraceptives may cause fluid retention and should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated

5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice. If jaundice develops, the medication should be discontinued

6. Steroid hormones may be poorly metabolized and should be administered with caution in patients with impaired liver function

7. Users may have dysphoria in normal tryptophan metabolism, which may result in a relative tryptophan deficiency

8. Serum folate levels may be depressed

9. The pathologist should be advised of oral contraceptive therapy when relevant specimens are submitted

10. Certain endocrine and liver function tests and blood components may be affected

(a) Increased sulfoliophthalate retention (b) Increased prothrombin and factors VII, VIII, IX, and X, decreased antithrombin III, increased norepinephrine-induced platelet aggregation (c) Increased thyroid-binding globulin (TBG) leading to increased circulating total thyroid hormone (d) Decreased pregnandiol excretion (e) Reduced response to methylxanthine test

Drug Interactions: Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin

ADVERSE REACTIONS

The increased risk of the following serious adverse reactions has been associated with oral contraceptives: thrombophlebitis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, cerebral hemorrhage, hypertension, gallbladder disease, benign hepatomas, congenital anomalies

There is evidence of an association between the following conditions and the use of oral contraceptives, although additional confirmatory studies are needed: mesenteric thrombosis, neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving oral contraceptives and are believed to be drug related: nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10% or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: gastrointestinal symptoms, breakthrough bleeding, spotting, change in menstrual flow, dysmenorrhea, amenorrhea during and after treatment, temporary infertility after discontinuance of treatment, edema, chloasma or melasma, breast changes, change in weight, change in cervical erosion and cervical secretion, possible diminution in lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, change in corneal curvature, intolerance to contact lenses

The following adverse reactions have been reported and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, insomnia, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption, vaginitis, porphyria

Special Notes on Administration

Menstruation usually begins two or three days, but may begin as late as the fourth or fifth day after discontinuing medication

After several months on treatment, bleeding may be reduced to a point of virtual absence, reduced flow may be a result of medication and not indicative of pregnancy

HOW SUPPLIED

Norlestrin [21] 1/50 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five rellis

Norlestrin [21] 2.5/50 is available in compacts each containing 21 tablets. Each tablet contains 2.5 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five rellis

Norlestrin [21] 1/50 is available in compacts each containing 21 yellow tablets and 7 brown tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each brown tablet contains 75 mg of ferrous fumarate. USP Available in packages of five compacts and packages of five rellis

Norlestrin [21] 2.5/50 is available in compacts each containing 21 pink tablets and 7 brown tablets. Each pink tablet contains 2.5 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Each brown tablet contains 75 mg of ferrous fumarate. USP Available in packages of five compacts and packages of five rellis

Norlestrin [21] 1/50 is available in compacts each containing 21 yellow tablets and 7 white inert tablets. Each yellow tablet contains 1 mg of norethindrone acetate and 50 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five rellis

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PARKE-DAVIS

Division of Warner-Lambert Company
Morris Plains, New Jersey 07950

Classified Ads

PATIENT BILLING SERVICES for Emergency Medicine Physicians and Radiologists. Comprehensive computerized patient accounts management and billing services available on a contract basis. Physician Data Services, Inc., P.O. Box 1026, Mount Airy. 919/786-6962.

GREENSBORO: Wanted, physician for established Family-Internal Medicine practice, to share and/or buy. Dr. Joe Henson, 1107 W. Friendly Ave., Greensboro 27401. 919/274-1567.

KEEPING LONG HOURS? Too many patients and not enough time? Have you considered employing a physician assistant to help extend your practice without overextending yourself? The North Carolina Academy of Physician Assistants can supply you with helpful information about the training and capabilities of physician assistants. For more information contact Jerry Heath, PA-C, 2303 10th Avenue Court NE, Hickory 28601. Day Phone: 704/324-9900, Home Phone: 704/327-2275.

FAMILY PRACTITIONER or Med/Peds. to join a private community-oriented Family Practice in summer 1986 located in small city/semi-rural area of WV. Send inquiries or CV to Joseph Golden, MD, POB 1304, Sophia WV 25921 or call 304/683-4304 (days) or 304/253-5409 (nights).

RALEIGH: RESIDENCY TRAINED FAMILY PHYSICIAN to join busy solo family physician. Salary with incentives and potential partnership, excellent opportunity for ambitious, personable physician. Contact: Capital Family Medicine, P.A., 3320 Executive Drive, Raleigh, 27609. 919/878-8596.

SEMINARS. Most major ski areas, Club Med, Disney World and other resorts. Topic: Medical/legal and financial management. Accredited. Current Concept Seminars, Inc. (since 1980), 3301 Johnson Street, Hollywood, FL 33021. 800/428-6069. Fee \$175.

1986 CME CRUISE/CONFERENCES ON SELECTED MEDICAL TOPICS. Caribbean, Mexican, Hawaiian, Alaskan, Mediterranean. 7-12 days year-round. Approved for 20-24 CME Cat. 1 credits (AMA-PRA) and AAFP prescribed credits. Distinguished professors. **FLY ROUNDTRIP FREE ON CARIBBEAN, MEXICAN & ALASKAN CRUISES.** Excellent group fares on finest ships. Registration limited. Pre-scheduled in compliance with present IRS requirements. Information: International Conferences, 189 Lodge Avenue, Huntington Station, New York 11746. 516/549-0869.

WESTERN NORTH CAROLINA: Emergency Department Medical Director position available in 104-bed hospital with annual emergency patient volume of 8,000. Located 45 minutes from Asheville, NC and 45 minutes from Greenville/Spartanburg, SC in the beautiful mountains of western NC. Hiking, camping, boating, kayaking, and cultural activities abound. Malpractice, health, life, and disability insurance provided. Contact: Doug Riley, Coastal Emergency Services, Inc., Suite 217, Executive Park, Asheville, NC 28801. Collect 704/253-1256.

Want to contact any physician known to have amyotrophic lateral sclerosis (ALS). J. P. Gallagher, M.D., 1544 Burningtrees Road, Charleston, SC 29412.

FOR SALE: usual otolaryngology instruments and furniture. Made by Surgical Mechanical Research. Condition good. Jacob C. Leonard, Jr., M.D., Box 310, Lexington 27292.

CONSIDER the cost-effective potential of adding a physician assistant to your practice. The North Carolina Academy of Physician Assistants will help you advertise to a large pool of qualified PAs at no cost to you. For information on how you can advertise your PA employment opportunity, contact Charles Kober, PA-C, NCAPA Employment Chairman, 108 Occoneechee Street, Hillsborough 27278. Day phone: 919/966-1101, home phone 919/732-8823.

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Introducing...

TEGA-CORT FORTÉ 1% - TEGA - CORT - 0.5%

(Available at all drug stores - Rx Only)

SQUEEZE TYPE DISPENSER BOTTLES

Tega-Cort Forté and **Tega-Cort** lotions are offered in a nice smooth non-staining water soluble base.

Indications: For relief of the inflammatory manifestations of corticosteroid responsive dermatoses including Poison Ivy, and sunburn.

Contraindications: Topical steroids have not been reported to have an adverse effect on pregnancy, the safety of their use in pregnant females has not absolutely been established. Therefore, they should not be used extensively on pregnant patients, or in large amounts, or for prolonged periods of time.

Dosage and Administration: Apply to affected area 3 or 4 times daily as directed by your physician.

Caution: Federal law prohibits dispensing without prescription. For external use only. Store in a cool place but do not freeze.

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WE FEATURE ONE OF THE MOST COMPLETE LINE OF INJECTIBLES IN THE SOUTH-EAST AT THE VERY BEST PRICE, CONSISTENT WITH QUALITY.

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for both sleep induction and
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Psychiatrist
California

... appears to have
the best safety record of any
of the benzodiazepines

Psychiatrist
California

After 15 years, the experts still concur about the
continuing value of Dalmane (flurazepam HCl/
Roche). It provides sleep that satisfies patients...
and the wide margin of safety that satisfies you.

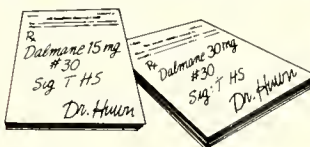
The recommended dose in elderly or debilitated
patients is 15 mg. Contraindicated in pregnancy.

DALMANE[®]
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sleep that satisfies

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References: 1. Kales J, et al. *Clin Pharmacol Ther* 12 691-697, Jul-Aug 1971. 2. Kales A, et al. *Clin Pharmacol Ther* 18 356-363, Sep 1975. 3. Kales A, et al. *Clin Pharmacol Ther* 19 576-583, May 1976. 4. Kales A, et al. *Clin Pharmacol Ther* 32 781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. *J Am Geriatr Soc* 27 541-546, Dec 1979. 6. Dement WC, et al. *Behav Med*, pp 25-31, Oct 1978. 7. Kales A, Kales JD. *J Clin Psychopharmacol* 3 140-150, Apr 1983. 8. Tennant FS, et al. Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI. *Clin Pharmacol Ther* 21 355-361, Mar 1977.



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Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase, and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

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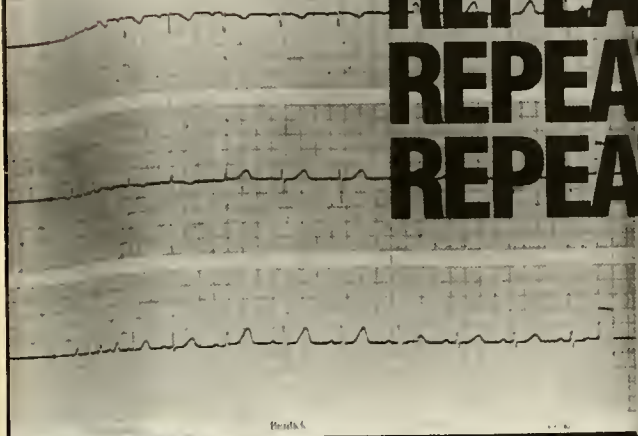
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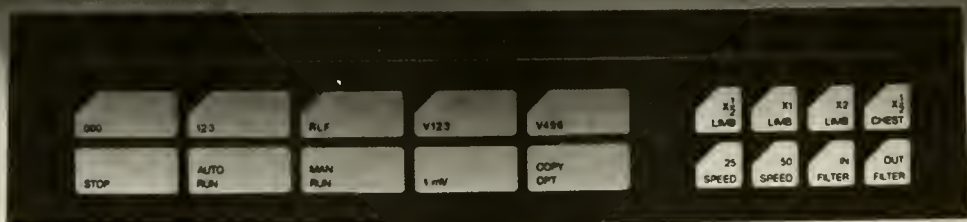
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NORTH CAROLINA MEDICINE TODAY



Aging in its many aspects

It is estimated that 25 million people (11% of the population) are over age 65, and represent the fastest-growing segment of the population by far. It is further estimated that this group currently spends approximately 75 billion dollars annually for personal health care, and accounts for some 55% of all federal health dollars.¹ For these reasons alone, studies concerned with various aspects of aging are of vital importance to the entire nation. Much major research in this complex area is being conducted in North Carolina, at its several medical centers and universities, often under grants from the National Institute on Aging.

Studies cover a wide range

Recent studies have reported on the physiological dynamics of aging as related to circulatory diseases and circulatory risk factors at advanced ages (over 85) as compared to findings in a study population with a mean age of over 70 years.² Another study, stemming from the comprehensive Duke First Longitudinal Study, evaluated Wechsler Memory Scale scores as related to distance from death and the potential use of the WMS as a predictor of survival in both normal and demented elderly populations,³ while yet another compared young and old adults in the spontaneous use of context to learn and recall information.⁴

Dealing with America's fourth leading killer disease

Researchers at Duke University Center for the Study of Aging are focusing on the study of Alzheimer's disease, a type of primary neuronal degeneration that is the most common form of dementia. Estimates vary but indicate that as many as 4 million older Americans¹ are afflicted with this illness, which has been labeled "the disease of the century."⁵ Concurrent with its medical research on Alzheimer's disease, the Duke University Center is providing innovative support mechanisms for afflicted families and other caretakers. A hotline provides callers with telephone consultations, introductions to others close by in similar circumstances, and practical medical, legal and psychological information. The Center has also aided in the establishment of 19 local support groups statewide, and regularly makes available information on Alzheimer's disease to health providers, nursing homes and hospitals, and others responsible for programs and services directed toward the victims of this killer disease.⁶

References: 1. Hason MK, Slack NL, Mooney RP. *W Va Med J* 79:98-102, May 1983. 2. Manton KG, Woodbury MA. *J Gerontol* 38:406-413, Apr 1983. 3. Siegler IC, McCarty SM, Logue PE. *J Gerontol* 37:176-181, Feb 1982. 4. Hess TM, Higgins JN. *J Gerontol* 38:65-71, Jan 1983. 5. Raach M. *NY Times Mag*, Jan 16, 1983, p. 22. 6. Gwyther L. *NC Med J* 44:434-436, Jul 1983.



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*Feighner JR, et al. *Psychopharmacology* 61:217-225, Mar 22, 1979

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Relief of moderate to severe depression associated with moderate to severe anxiety.

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use; then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses). Myocardial infarction and stroke reported with use of this class of drugs. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus. **Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female, elevation and lowering of blood sugar levels, and syndrome of inappropriate ADH (antidiuretic hormone) secretion.

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. IV administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly.

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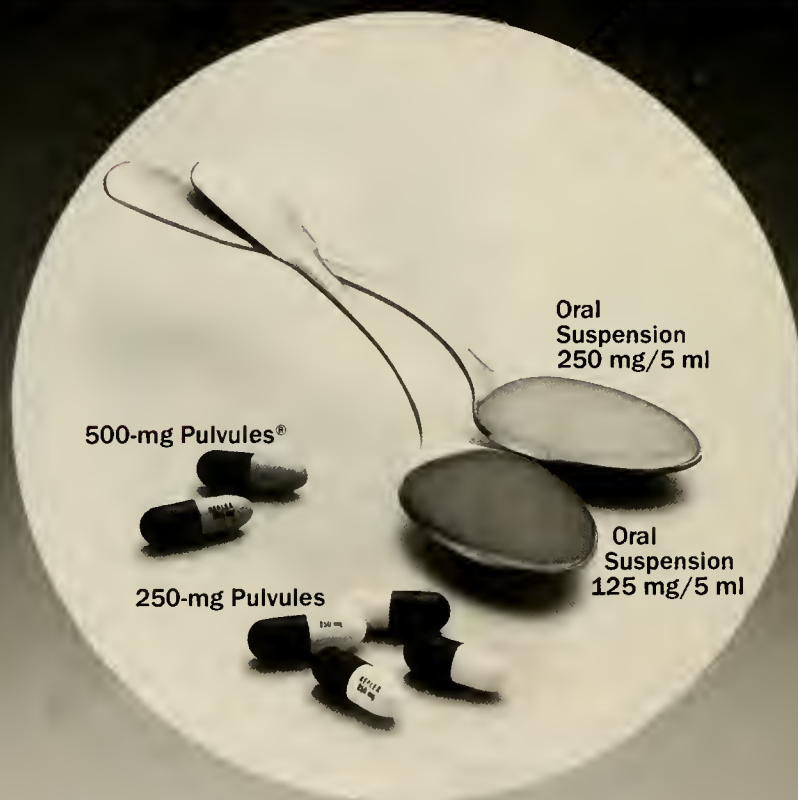
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That Addisonian Tan: The Healthy Looks that May Deceive

Mark Linzer, M.D.

- *A man from Buffalo who feels poorly, craves salty foods, and looks in December as if he just stepped off the beach — but didn't — must be viewed with a skeptical eye.*

“**W**HAT a tan!” The phrase can be heard frequently around the swimming pools, backyards, and beaches of North Carolina. But physicians have become increasingly aware that solar energy can produce serious and long-lasting destructive dermal and epidermal changes as well as markedly increase the risk of developing malignant melanoma. Thus, the medical literature has recently been filled with warnings for our patients to wear protective clothing, utilize sunscreens and even beware the reflection from sand, snow or water.

With the plethora of recent reminders concerning the evils of suntanning, physicians may begin to view the

excessively tanned person as someone not unlike the chronic smoker — individuals who merit a serious lecture on the dangers of their “habit.” The following case report will serve as a reminder that excessive suntanning may be a sign of the life-threatening but treatable disorder described by Thomas Addison 130 years ago; it illustrates that a patient with this disorder may appear deceptively healthy.

I recently saw a 27-year-old former carpenter who complained of two months of weakness, anorexia, nausea, dizziness and a 10 pound weight loss. He also noted that his suntan from the previous summer had not faded. In fact, he felt that his tan was even darker in December (while he was living in Buffalo) than it had been the previous July. Over the past six months he had developed a craving for Doritos such that he consumed over one large bag (containing



Figure 1. Patient (on left) with excessive hyperpigmentation. Author's chest is included for comparison.



Figure 2. Patient's suntanned axilla.

approximately 4 g of sodium) per day. The patient had had no trauma, recent surgery or exposure to tuberculosis. He had always been in good health before the present illness. The family history was remarkable for hypothyroidism in his mother and adult onset diabetes mellitus in an aunt. He was a tall, healthy appearing, lean and muscular person with a dark tan that was most prominent in sun-exposed areas (figure 1). The tan was sharply demarcated at the line where he wore his swimsuit. There was no hyperpigmentation of the palms or buccal mucosa, and no accentuation of tanning at the elbows, knees or metacarpophalangeal joints. There was some excessive tanning in the axillae (figure 2).

His blood pressure was 110/80 supine and dropped to 90/60 while standing. His heart rate was 80 supine and 108 standing. He was afebrile and breathing comfortably at rest. Cardiac examination showed normal heart sounds with a mid-systolic click. Due to the combination of orthostasis and the excessive tanning, the diagnosis of Addison's disease was considered. This diagnosis was supported by finding that the serum sodium was 121 mm/l (normal 135-145 mm/l) and the potassium was 4.9 mm/l (normal 3.2-

4.7 mm/l). Serum glucose was 76 mg/100 ml (normal 75-100 mg/100 ml).

The patient was placed in the hospital for further diagnostic evaluation, including a 48 hour cosyntropin stimulation test. Although a "one shot" cosyntropin stimulation test might have been sufficient in the eyes of some, I performed the full 48 hour test in order to unequivocally document a diagnosis which, once made, would relegate the patient to a lifetime of medications for an endocrine insufficiency disease that is potentially life threatening.

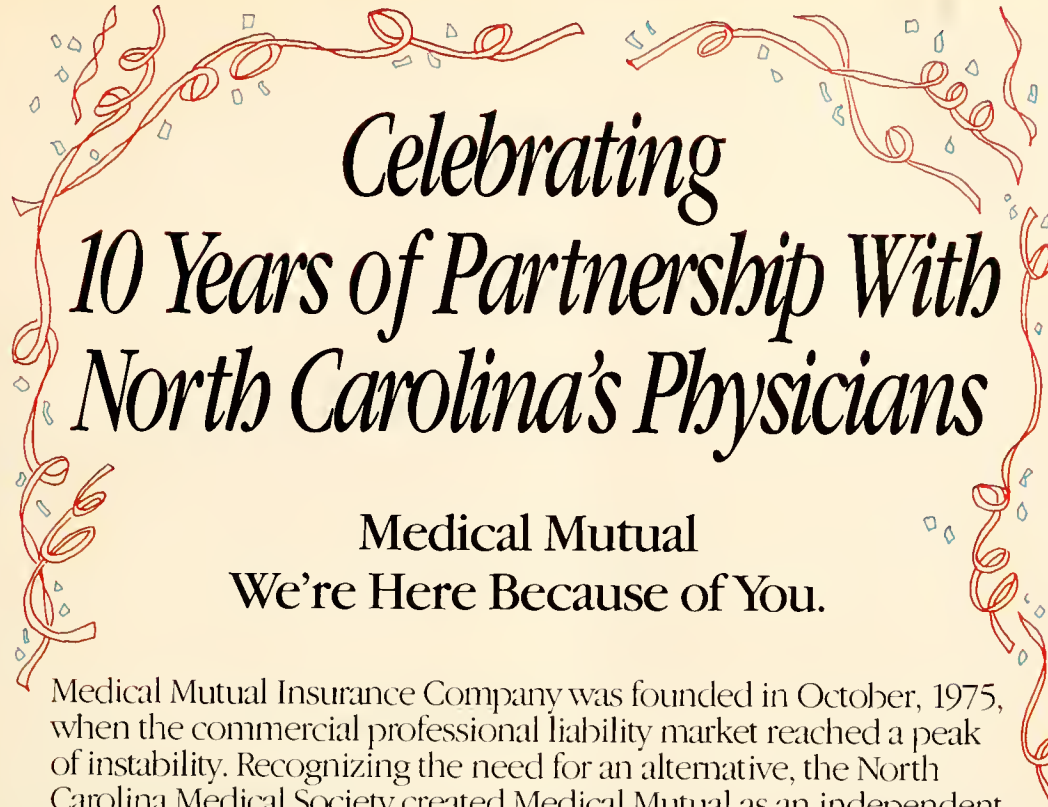
A morning serum cortisol was markedly low at 4.8 µg/dl (normal 12-25 µg/dl) and a simultaneous ACTH level was elevated at 121 pg/ml (normal 10-50 pg/ml). Continuous cosyntropin stimulation produced no rise in serum cortisol after 48 hours (normal response = > 50 µg/dl). A skin test for tuberculosis was negative at 48 hours, and an abdominal CT scan showed no evidence of metastases, calcification, or adrenal hemorrhage. A diagnosis of primary adrenal insufficiency was made, and the patient was started on cortisone acetate and fludrocortisone by mouth. After only two weeks the patient was feeling markedly improved. There a sharp decrease in his consumption of Doritos, and his tan had already begun to fade.

From Addison's original description of his patients with adrenal failure, one might not expect the vigorous, suntanned appearance of the patient reported above to be a sign of Addison's disease. Indeed, the "anaemia, general languor and debility, remarkable feebleness of the heart's action, irritability of the stomach and peculiar change of color in the skin" noted by Addison,¹ might lead one to expect a sallow and debilitated individual. Although my patient felt unwell, there was nothing in his general appearance that gave a clue to this. Perhaps this is why he waited so long before seeking medical attention. Not all patients with Addison's disease are hyperpigmented,² but the vast majority are excessively tanned,³ often in unusual locations. In our patient, the tanning in the axillae (especially during a Buffalo winter) was a clue that pathologic tanning was taking place. The association of mitral valve prolapse with Addison's disease has not previously been reported and at present can only be viewed as a chance association.

Chronic sunlight exposure is associated with several dermatopathologic changes including wrinkles, telangiectasiae, Favre-Racouchot Syndrome (yellow facial skin color with cysts and comedones) and the poikiloderma of Civatte (prominent hair follicles in brown telangiectatic skin). Excessive suntanning, while clearly a common sign of longstanding exposure to ultraviolet light, should also raise the specter of primary adrenal insufficiency, even in the "glowingly" healthy patient.

References

1. Addison T. On the constitutional and local effects of disease of the supra-renal capsules. London: Highley, 1855.
2. Barnett AH, Espiner EA, Donald RA. Patients presenting with Addison's disease need not be pigmented. *Postgrad Med J* 1982;58:690-2.
3. Nerup J. Addison's disease — clinical studies. A report of 108 cases. *Acta Endocrinol* 1974;76:127-39.



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Triiodothyronine Therapy: An Iatrogenic Bait

Jorge J. Gonzalez, M.D.

• *There are thyroid pills and thyroid pills.*

THE alterations of the classical thyroid function test produced by T₃ replacement or suppression therapy are well known. Despite this fact continued misinterpretation of the results of thyroid function tests of patients on T₃ therapy occur. Some patients do not know the type or name of their thyroid pills. The following exchange illustrates the history of several patients I have seen in the last two years.

"How long have you been taking the thyroid pills, Ms. Smith," asked Doctor One. "Oh, three or four years," said Ms. Smith. "Do you know why you were started on the thyroid pills?" Doctor One asked. "The Doctor told me my thyroid was low or something like that," replied Ms. Smith. "Well, we'll check that out," said Doctor One.

Two days later T₄ is 2.0, free thyroxine index equals 1.3 (those values are quite low). Phone call: "Ms. Smith, are you taking your thyroid pills?"

"Yes, Doctor One, every day," she said. "Well, your blood levels are very low so double your tablets, okay?" retorted Doctor One.

One month later Ms. Smith is talking to Doctor Two: "... and my thyroid level was very low so he told me to double my pills. I still feel quite bad, as a matter of fact, worse." Thyroid functions are checked again. T₄ is now less than 1. Doctor Two phones Ms. Smith. "Are you taking your pills, Ms. Smith ... ?"

Ms. Smith ends on a fairly massive dose of triiodothyronine (Cytomel) replacement and with a beautiful case of iatrogenically-induced hyperthyroidism.

The classical "thyroid function test" used in the great majority of hospitals and private offices includes a total T₄, a T₃ resin uptake and a free thyroxine index. Ingestion of triiodothyronine in doses greater than 50 µg per day suppresses TSH secretion by the hypothalamus-pituitary complex. This suppression of the TSH induces a marked hypofunction of the thyroid gland. (This was recognized quite

From the Department of Internal Medicine, New Hanover Memorial Hospital, Wilmington 28402.

Effect of Thyroid Suppression Therapy on Thyroxine Levels

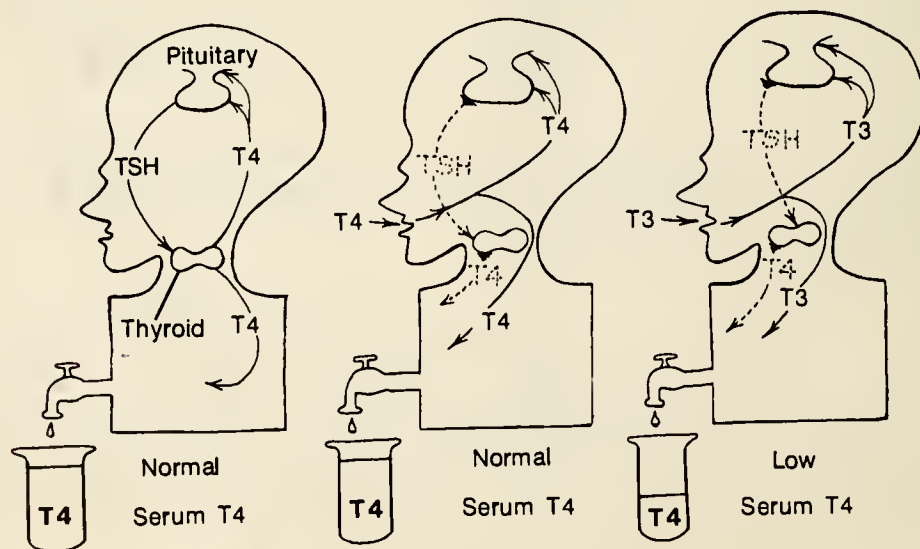


Figure 1. A simplified scheme of thyroid suppression by T₃ or T₄.

early and was the basis for the now somewhat displaced "thyroid suppression test.") The hypofunction of the thyroid gland produces a marked decrease in the circulating T4 level (figure 1). Neither the total T4 nor the resin uptake measure the circulating T3. The conventional package of thyroid function tests will show numbers that will suggest hypothyroidism. If the treating physician is not aware of the exact type of thyroid pills the patient is taking, he may commit the mistake of asking the patient to increase the triiodothyronine. The increase of the dose of T3 is followed by a more profound depression of the T4 level and, too frequently, an additional increase of the "thyroid replacement."

Patients on T3 replacement or suppression therapy should be followed using measurements of T3 by radioimmunoassay, TSH, and in some cases TRH stimulation tests.

So next time you see a patient on "thyroid pills" with a low total T4, ask her or him to look at the prescription bottle. You may be in for a surprise!

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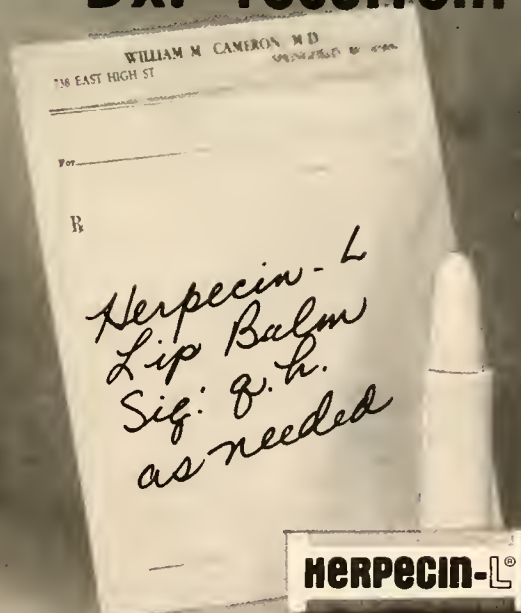


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Overwhelming Infection After Splenectomy: A Challenge to Preventive Medicine

Johnny B. Craig, M.D. and Bayard L. Powell, M.D.

• *This is a case of overwhelming post splenectomy infection from which the patient died 20 years after removal of her spleen.*

SPLENECTOMIZED patients are at increased risk for infections; the most dramatic and clinically significant is overwhelming post splenectomy infection (OPSI), a syndrome of documented bacterial septicemia and/or meningitis more than six weeks after splenectomy.

A 67-year-old white woman presented after three days of nonproductive cough, myalgias, and malaise. Twenty-four hours before admission she had noted fever of 102° F, a shaking chill, nausea, vomiting, diarrhea, and discoloration of the skin of her face, hands and feet. She was treated with intravenous ampicillin and tobramycin in the referring emergency room and transferred to our institution. Her spleen had been removed 20 years earlier because of trauma.

Upon arrival she was alert and oriented, but tachypneic, febrile (oral temperature 102.5°F) and hypotensive (70/30 mm Hg) with generalized purpura and ecchymoses. White blood cell (WBC) count was 20,300/mm with 56% segmented neutrophils and 31% band forms. Dohle bodies (pale blue intracytoplasmic inclusion bodies) were noted and intracellular encapsulated diplococci were obvious within WBCs on routine blood smear. Urine and serum counter immunoelectrophoreses were positive for *Streptococcus pneumoniae*. Prolongation of the prothrombin time (38.9 seconds), partial thromboplastin time (>120 seconds), thrombocytopenia (46,000 mm³), hypofibrinogenemia (26 mg/dl) and elevated fibrin split products (>256 and <512 µg/ml) consistent with disseminated intravascular coagulation were all present. Arterial blood gases revealed hypoxemia and a profound metabolic acidosis (pH 7.34; pCO₂ 22; pO₂ 53; HCO₃ 11.3).

Despite aggressive respiratory, cardiovascular (volume replacement and vasopressor agents), chemotherapeutic (high dose penicillin, high dose steroids), and hematologic (platelet, red blood cell, and fresh frozen plasma transfusion) therapy, the patient rapidly deteriorated and died 36 hours after admission. Premortem blood cultures were positive for pneumococci exquisitely sensitive to both penicillin-G and ampicillin. Autopsy findings were consistent with septicemia, disseminated intravascular coagulation, and adrenal hemorrhage.

Discussion

This case is a definitive example of the dramatic presentation and clinical course associated with overwhelming postsplenectomy infection. The incidence of this syndrome is related to age, interval after splenectomy, and the presence or absence of an underlying medical illness. The overall mortality from sepsis in splenectomized patients is 30-200 times higher than in a population with normal splenic function.¹⁻³ OPSI is most common in the pediatric population with the majority of cases (70-80%) occurring within three years after splenectomy; however, cases occurring up to 31 years postsplenectomy have been reported.^{1, 3-5} Children whose spleens are surgically removed before 12 months of age have the greatest chance of developing OPSI; risk gradually decreases until age 17 after which the incidence is relatively independent of age (0.5-2.0%).^{1, 3, 4, 6, 7} In children the risk of developing OPSI is increased in those with an underlying hematologic or malignant disease when compared with patients with splenectomies after trauma. The highest risk in this population occurs in association with thalassemia (16-25%) and lymphoreticular neoplasms (9.5-11.5%); the lowest after trauma-related splenectomy (1.5-2.1%).^{1, 3} In contrast to the pediatric population, in adults the syndrome is less common, occurs more than 3 years after splenectomy in up to 75% of cases, and incidence shows little correlation with age or underlying disease.^{1, 7}

The clinical syndrome is most frequently caused by encapsulated bacteria; pneumococcal infections are the most common (50-60%). However, *Hemophilus influenzae*, *Neisseria meningitidis*, staphylococci, *Salmonellae*, *Escherichia coli*, *Pseudomonas aeruginosa*, other streptococcal species, and *Listeria monocytogenes* have been reported to be the causal organism in case reports.¹⁻⁷ There is often a prodromal period characterized by symptoms similar to those of "viral syndromes" for 36-72 hours before the onset of the acute fulminant illness described in our patient. The fulminant illness is characterized by disseminated intravascular coagulation in greater than 50% of cases (especially in cases caused by pneumococcal organisms), Waterhouse-Friderichsen syndrome (50%) and visible organisms on peripheral smear (33%). The mortality rate is 50-80% despite appropriate therapy. Recurrences are common among survivors (40-50%).¹⁻⁴

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The mechanism of increased susceptibility to overwhelming infection in patients after splenectomy is multifactorial.^{1,3, 8, 9} The spleen is the major source for sequestration of non-opsonized bacteria, a role which is especially vital for encapsulated organisms that are inherently resistant to phagocytosis. In addition, there is delayed production of opsonizing antibody to bacteria in this group of patients; therefore clearance of bacteria by the liver and the rest of the reticuloendothelial system is delayed. The spleen is also the major producer of IgM, the most effective immunoglobulin in opsonization of encapsulated organisms and the storage site of helper T lymphocytes.

Since up to 80% of OPSI patients die despite appropriate therapy, prevention is vital. Pneumococcal and meningococcal vaccines should be administered to all splenectomized patients, preferably as much as one month prior to surgery. Since not all pneumococcal serotypes are included in these vaccines and splenectomized patients have evidence of a quantitatively smaller and chronologically shorter specific antibody response, vaccination alone is insufficient for adequate protection.^{2, 8, 10, 11} All authorities agree that extensive patient education with instruction to take 1-2 grams of ampicillin and seek medical advice immediately upon onset of prodromal symptoms is indicated for all patients who have undergone splenectomy. Penicillin prophylaxis (125 mg for children or 250 mg for adults two times per day), though not evaluated in randomized controlled studies, is recommended for all patients during the 3-5 years after splenectomy, for patients with low antibody titers after pneumococcal or meningococcal vaccines, and for those with other high risk states (e.g., patients with high job exposure or undergoing immunosuppressive therapy).^{1, 8, 12} The ultimate in prevention is the avoidance of splenectomy whenever possible. This can be accomplished by using splenorrhaphy instead of

splenectomy when feasible after trauma, by limiting staging splenectomies (as in Hodgkin's disease) to only those cases where therapy will be changed by the surgical findings, and by delaying elective splenectomies in children until they reach an age of lower risk.^{1, 3, 7, 8}

Infectious complications other than OPSI also appear to be more common in splenectomized patients; these include immediate postoperative infection, herpes zoster infections in patients with Hodgkin's disease, malaria and babesiosis.^{1, 3}

Our patient exhibited the most common features and the fulminant clinical deterioration associated with the syndrome of OPSI in an otherwise healthy patient 20 years after splenectomy. Since therapy is largely ineffective once this syndrome is clinically evident, prevention must be stressed in all splenectomized patients.

References

1. Francke EL, Neu HC. Postsplenectomy infection. *Surg Clin North Am* 1981;61:135-55.
2. Krivit W. Overwhelming postsplenectomy infection. *Am J Hematol* 1977;2:193-201.
3. Singer DB. Postsplenectomy sepsis. *Perspect Pediatr Pathol* 1973;1:285-311.
4. Horan M, Colebatch JH. Relation between splenectomy and subsequent infection: clinical study. *Arch Dis Child* 1962;37:398-412.
5. Haque AU, Min KW, From P, Song J. Postsplenectomy pneumococemia in adults. *Arch Pathol Lab Med* 1980;104:258-60.
6. Heier HE. Splenectomy and serious infections. *Scand J Haematol* 1980;24:5-12.
7. O'Neal BJ, McDonald JC. The risk of sepsis in the asplenic adult. *Ann Surg* 1981;194:775-8.
8. Rosner F, Zarabi MH. Late infections following splenectomy in Hodgkin's disease. *Cancer Invest* 1983;1:57-65.
9. Hosea SW, Brown EJ, Hamburger MI, Frank MM. Opsonic requirements for intravascular clearance after splenectomy. *N Engl J Med* 1981;304:245-50.
10. Ruben FL, Hankins WA, Zeigler Z, Norden CW, Harrison A, Winkelstein AS, Hermann DJ. Antibody responses to meningococcal polysaccharide vaccine in adults without a spleen. *Am J Med* 1984;76:115-21.
11. Ammann AJ, Addiego J, Wara DW, Lubin B, Smith WB, Mentzer WC. Polyvalent pneumococcal-polysaccharide immunization of patients with sickle-cell anemia and patients with splenectomy. *N Engl J Med* 1977;297:897-900.
12. Prevention of serious infections after splenectomy. *Med Lett Drug Ther* 1977;19:2-4.

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Snakebite Treatment in the 80s

Theodore R. Winneberger, M.D., E. Jackson Allison, Jr., MD/MPH, Joyce M. Mitchell, M.D., Mark R. Pierce, M.D., George Podgorny, M.D. and J. Jeffrey Tope, M.D.

● *This paper outlines the sensible steps to take, and some of the controversies, when a victim encounters a poisonous snake.*

SNAKE envenomations, although not a frequent event in most physicians' medical practices, are nonetheless a medical emergency requiring an organized approach to treatment for a successful outcome.

In the U. S., approximately 8,000 people are bitten each year, and 12-15 of these result in death.¹ North Carolina has been found to have the highest incidence of poisonous snake envenomations; they occur here at a rate of 18 cases per 100,000 of the population.²

There are 20 species of poisonous snakes in the U. S., the majority of which are pit vipers (crotalids) which include the rattlesnakes, copperheads and water moccasins. Another group, the elapidae, includes the coral snake, which will be discussed later in this paper.

Poisonous snakes are endemic in every state except Maine, Alaska and Hawaii. Identifying features of the pit vipers include the pit between the eye and nostril bilaterally. This is apparently a heat-sensing organ used in finding prey. Pit vipers have triangular-shaped heads and elliptical pupils if you get close enough to observe them. On their underside, they have a single row of caudal plates, most safely observed when the snake is dead. Pit vipers deliver their venom through fangs supplied by venom glands, each of which has an individual muscle and nerve. This system allows the snake to inject variable amounts of venom or none at all. Of individuals bitten by crotalids, up to 30% may not have been envenomated.^{3, 4}

In North America bites are predominantly inflicted by the crotalids and rarely by the elapidae.⁵ Other more rare poisonous snakes in North America will most likely be found in the zoo where identification is already known. Distinguishing which snake has inflicted the bite should be straightforward, and treatment with antivenin will consist of a single antivenin for the crotalids and a single antivenin for the elapidae, removing much confusion about which antivenin should be used.

The pit viper's striking range may be as much as one-third to two-thirds of its body length. Some rattlesnakes have been known to attain lengths of seven to eight feet, and anecdotes have reported them over nine feet long. Rattlesnakes account for most of the mortality and morbidity from envenomations.

The copperheads are reportedly the least poisonous of the pit vipers, with some authors stating that the treatment of copperhead envenomations should be undertaken only in the young, the old and the chronically ill.⁶ Most experts would recommend simple observation of other patients except in the case of apparently significant envenomation. Pit viper venom is very destructive to mammalian structures.^{3, 7-9}

Clinical manifestations of envenomations can vary, but the most common initial reaction is burning pain followed by localized tissue swelling. Some of the more common systemic symptoms include nausea, vomiting, paresthesias, hypotension and muscle fasciculations. The deaths that occur secondary to envenomations are not infrequently due to coagulopathies.

Treatment

Prehospital treatment has been the subject of much discussion and controversy for a number of years. After being bitten, the first thing to do is to move away from the snake. Some authors recommend killing and bringing the snake in for identification;¹⁰ since few people have any experience in handling snakes, however, this does not seem to be wise. Bites have been known to occur even from a disembodied head.

Another commonly recommended procedure in prehospital care of snake envenomations is incision and suction, popularized in the 1920s and restudied several times in more recent years. The more recent literature suggests that if the patient has signs and symptoms of envenomation, if transport to a hospital will take longer than an hour, and if the procedure can be performed safely without damage to underlying structures, then it should be done.^{9, 10} It is doubtful that this recommendation is safe for the lay public, most of whom have never cut another human therapeutically. Incision and suction has been shown to remove some of the venom from the wound and some victims having it performed tend to have a less severe reaction to their bite.¹¹⁻¹³ Incision and suction should be done 15 minutes after the bite and continuous suction should be applied for 30 to 45 minutes.^{3, 4, 14, 15} The incisions should be shorter than one centimeter, just through the subcutaneous layer, and across the bite marks. Incision and suction should only be used if the patient is showing signs of significant envenomation, is more than an hour from the hospital, and if the person to perform the procedure is comfortable doing it.

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The use of a tourniquet is a controversial first aid recommendation. While the tourniquet has fallen into disfavor, the new terminology being used is that of "a loosely constrictive band" to occlude only the lymphatics. Many authors believe that the venom is disseminated via the lymphatics and that slowing its dissemination will lessen the severity of the patient's reaction in the field.^{3, 4, 9, 14} Some authors disagree with the use of any band, even "a loosely constrictive band," because the tourniquet can exacerbate the swelling and edema of the extremity and can quickly become even more hazardous secondary to progressive ischemia to that extremity.

Ice and cooling of the site of the bite is condemned by the vast majority of physicians because of increased morbidity in cases treated with ice.¹⁴⁻¹⁶

Commonly accepted recommendations, felt at least to do no harm and possibly to help in first aid, include immobilizing the affected extremity, keeping the patient from taking anything by mouth while transporting, and always being aware of the ABCs of resuscitation while en route.

Depending on location of the health care facility, the patient may be confronted with either of two schools of thought regarding definitive treatment. Most agree with starting at least one I.V. of a crystalloid solution and drawing routine labs including type and crossmatch, prothrombin time, partial thromboplastin time, fibrinogen, fibrinogen degradation products, platelets, complete blood count, creatinine and urinalysis. The most common disagreement concerns whether or not surgical treatment has a place in the management of snakebites. En bloc excision of the bite site and frequent, if not routine, use of fasciotomies were popularized by Glass and are supported by some authors in the current literature.^{7, 17} Most clinicians today favor antivenin as the definitive treatment and only use fasciotomies in a documented compartment syndrome.^{5, 18-20} Some authors concede that en bloc excision may have a place in snakebite treatment, but only under very selective and still controversial situations: when the bite has occurred within 30 minutes; when the patient is showing significant manifestations of envenomation; when the patient has a history of being allergic to the antivenin or has a positive skin test to the antivenin.²¹

The administration of antivenin is well-covered in Otten's article in the *American Journal of Emergency Medicine* and will not be restated here.⁶ Once the decision is made to use antivenin, which is any situation where signs and symptoms of envenomation occur, enough should be used to arrest the signs and symptoms.^{6, 21, 22} Finally, cover the patient with appropriate tetanus prophylaxis and use a broad spectrum antibiotic.^{4, 23}

Coral snakes, which are members of the elapidae, require separate discussion from the crotalids due to their many differences. These snakes are usually small, shy, slender, and very colorful. To distinguish a coral snake from similar looking but non-poisonous snakes, such as the king snake, observe the arrangement of the colored bands

on its main body. As the saying goes, "red on yellow, kills a fellow; red on black, venom lacks." These band characteristics are consistent only on the mid-body. Coral snakes can be found along the eastern seaboard as far north as North Carolina, and there is a Sonoran or Arizona coral snake found in the southwestern United States. The delivery system of the elapids' venom is much less efficient than the crotalids. The elapidae have much smaller fangs, which require the snake to hold on longer in order to envenomate the victim. The venom of the elapidae is very different from the crotalids, with the exception of the Mojave rattlesnake, and has been recognized as being primarily neurotoxic with systemic manifestations appearing five hours or more after the bite. The earliest manifestations may be cranial nerve dysfunction such as ptosis, slurred speech and mydriasis. Respiratory musculature is affected last and is the most frequent cause of death.

Because of the variable period between bite and systemic manifestations, and the seriousness of the sequelae, all suspected coral snakebite patients (also Mojave rattlesnake bites) should be admitted to the hospital and receive five vials of antivenin, even in the absence of symptoms.

References

1. Treatment of snakebite in the USA. *Med Lett Drugs Ther* 1982;24:87-9.
2. Parrish HM. Incidence of treated snakebites in the United States. *Public Health Reports* 1966;81:8.
3. Russell FE. Snake venom poisoning. Philadelphia, J. B. Lippincott Company, 1980.
4. Russell FE. Snake venom poisoning in the United States. *Ann Rev Med* 1980; 31:247-59.
5. Arnold RE. Treatment of venomous snakebites in the Western Hemisphere. *Milit Med* 1984;149:361-5.
6. Otten EJ. Antivenin therapy in the emergency department. *Am J Emer Med* 1983;1:83-93.
7. Huang TT, Blackwell SJ, Lewin SR. Tissue necrosis in snakebite. *JAMA* 1981;245:53-8.
8. Kunkel DB, Curry SC, Vance MV, Ryan PJ. Reptile envenomations. *J Toxicol Clin Toxicol* 1983;21:503-26.
9. Wingert WA, Pattabhiraman TR. Effects of crotalid venoms on human cell-tissue cultures. *Proc West Pharmacol Soc* 1982;25:399-402.
10. Watt CH. Poisonous snakebite treatment in the United States. *JAMA* 1978;240:654-6.
11. Jackson D. Treatment of snakebite. *So Med J* 1929;22:603-8.
12. Jackson D, Harrison WT. Mechanical treatment of experimental rattlesnake venom poisoning. *JAMA* 1928;90:1928-9.
13. Parrish HM. Early incision and suction of snakebite wounds in dogs. *NC Med J* 1955;16:93-6.
14. Garfin SR, Mubarak SJ, Davidson TM. Rattlesnake bites. *Clin Ortho Related Res* 1979;140:50-7.
15. Merriam TW, Leopold RS. Evaluation of incision and suction in venom removal. *Clin Res* 1960;8:258.
16. Stewart ME, Greenland S, Hoffman JR. First-aid treatment of poisonous snakebite: are currently recommended procedures justified? *Ann Emerg Med* 1981;10:6.
17. Glass TG. Early debridement in pit viper bites. *JAMA* 1976;235:2513-6.
18. Garfin SR. Rattlesnake bites: current hospital therapy. *West J Med* 1982;137:411-2.
19. Garfin SR, Castilioni RR, Mubarak SJ, et al. Rattlesnake bites and surgical decompression: results using a laboratory model. *Toxicol* 1984;22:177-82.
20. Garfin SR, Castilioni RR, Mubarak SJ, et al. Role of surgical decompression in treatment of rattlesnake bites. *Surg Forum* 1979;30:502-4.
21. Boyden TW. Snake venom poisoning: diagnosis and treatment. *Ariz Med* 1980;37:639-41.
22. Buntain WL. Successful venomous snakebite neutralization with massive antivenin infusion in a child. *J Trauma* 1983;23:1012-4.
23. Goldstein EJ, Citron DM, Gonzalez H, et al. Bacteriology of rattlesnake venom and implications for therapy. *J Infect Dis* 1979;140:818-21.

Neck Masses: Illustration of a Logical Approach

Eugene W. Linfors, M.D. and Francis A. Neelon, M.D.

PATIENTS with neck masses often present first to their primary care physicians. It is essential that these physicians be familiar with the best methods for evaluating neck masses. The selection of proper diagnostic tests and treatment is especially important in cases of cancer since inappropriate choices can have disastrous consequences. We offer three cases which illustrate important principles of diagnostic strategy for adult patients with a neck mass.

Case 1

A 61-year-old white woman, previously in good health, noted a slowly enlarging lump in her neck and mild fatigability for nine months. She denied any pain, erythema, warmth, dysphagia or hoarseness and there was no fever, chills or weight loss. She denied smoking, excessive alcohol intake, prior neck irradiation, exposure to asbestos, woodworking or leather tanning processes. Physical examination was normal except for a mass on the left side of the neck which could be seen, as well as felt, to push the left carotid artery and sternocleidomastoid muscle anteriorly while deviating the trachea to the right. The mass was very close to but palpably separate from a normal-sized thyroid gland. It was firm but not hard, non-tender, and could be moved from side to side and up and down. It did not move with swallowing. The carotid pulsation was greater on the left than the right, but the mass itself did not pulsate. There was no bruit. Careful examination of the head, eyes, ears, nose, tongue and pharynx revealed no other lesions. There were no palpably enlarged lymph nodes in the neck, supraclavicular, axillary, inguinal, or epitrochlear areas.

Our assessment at this point was that of a mass in the left anterior triangle very close to, but distinct from, the thyroid gland. Differential diagnosis included a glomus tumor, congenital cyst, thyroid neoplasm, or a metastatic tumor. An enlarged salivary gland or carotid aneurysm was considered unlikely as was cervical lymphadenitis.

Blood count and differential, serum chemistries, and chest x-ray were normal. Further definition of the extent of the mass as well as its site of origin and etiology were sought. Thyroid scan showed decreased uptake in the left lower pole but an otherwise normal gland. Computerized tomography demonstrated a mass which appeared to be within the carotid sheath but could not be distinguished with certainty as separate from a slightly enlarged left thyroid lobe (figure 1). It was markedly enhanced with

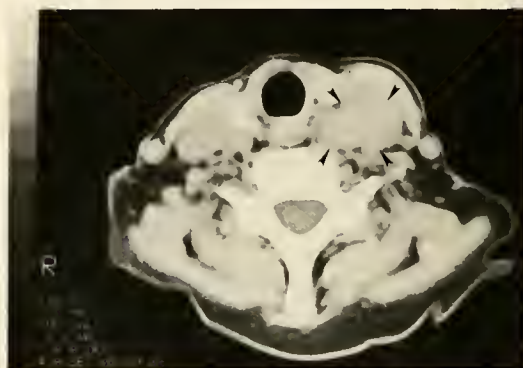


Figure 1. *Computed tomogram of neck in patient 1 showing mass (arrows), displacing carotid artery anteriorly, and contiguous with thyroid gland.*

contrast, suggesting its vascular nature. An aortic arch study and selective angiograms of the left carotid and thyroid arteries demonstrated a very vascular mass (figure 2), the blood supply to which arose from the left inferior thyroidal artery and to some extent from the left superior thyroidal artery. These imaging procedures had narrowed the differential slightly, but not much further than had the physical exam.

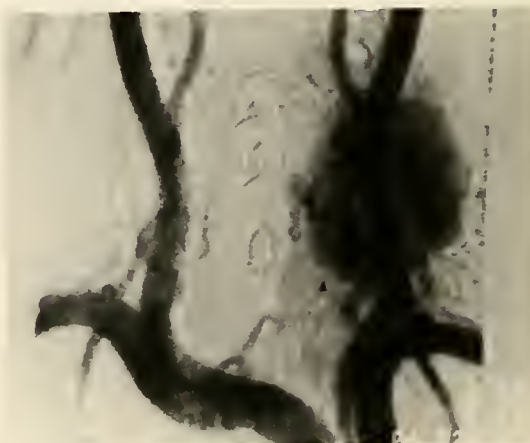


Figure 2. *Arch arteriogram demonstrating highly vascular mass supplied by the thyroidal artery.*

From 306 S. Gregson Street, Durham 27701 and Department of Medicine, Duke University Medical Center, Durham 27710.

At neck exploration the mass was removed from between the longus colli muscle posteriorly and the carotid anteriorly. It was adherent to, but did not emanate from, either the carotid artery or the vagus nerve but arose from the middle sympathetic cervical ganglion. Histological study revealed a paraganglioma. Postoperatively she did well except for the development of a mild Horner's syndrome on the left due to removal of the diseased middle cervical ganglion.

Comment

This and the following case studies illustrate several features concerning diagnostic strategy for an adult over age 35 who presents with a single neck mass. We make several assumptions at the outset:

1. a neck mass in an adult is considered malignant until proven otherwise;
2. tissue is needed to prove or disprove malignancy;
3. chances for cure diminish if surgical violation of cervical fascial planes occurs without removing all malignant tissue;
4. primary neoplasms may be occult and must be searched for;
5. the nature and location of the tumor and/or metastases determine prognosis.

All successful strategies begin with a thorough history and physical examination which are said to reveal the most likely diagnosis ninety percent of the time.¹ Knowledge of the epidemiology of neck masses as well as the detailed anatomy of the neck is essential. Ultrasonography and radiographic imaging are important, but should be tailored to the findings on history and physical examination. Our patient had a lump in the anterior triangle of the neck where diagnostic possibilities include developmental anomalies (lateral cervical, dermoid, epidermoid, and thymus cysts), infection (lymphadenitis, mononucleosis, and granulomatous diseases), or neoplasms (primary or metastatic, benign or malignant). Reports from tertiary care centers claim that more than eighty percent of neck lumps in patients over age 40 are neoplastic.² However, one "general" otolaryngology clinic in Norway reported 48% infectious, 38% neoplastic (16% malignant), and 14% other categories.³ Cervical adenitis, either acute (streptococcus, staphylococcus, mononucleosis, cat scratch fever) or subacute (cat scratch fever, toxoplasmosis, cytomegalovirus, psittacosis or tuberculosis), is more common in children. Of the congenital anomalies, dermoid cysts are more common in children but thyroglossal duct cysts and some branchial cleft cysts are common in adults. Most malignant masses are metastatic in origin, usually from squamous cell carcinoma of the head and neck. Cancer is more likely in the presence of certain risk factors: smoking (incidence of cancer increases steeply after 20 pack-year history); alcohol intake; prior neck irradiation; history of other tumors; exposure to asbestos, woodworking (which increases chances of nasopharyngeal and paranasal sinus tumors), and leather tanning processes (secondary to chronic acid exposure). Our patient had none of these risk factors.

Physical examination of the neck can answer several questions (figure 3). The first is whether or not the mass is a

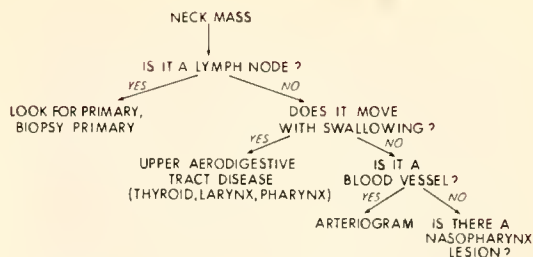


Figure 3. Algorithm for evaluation of a neck mass.

lymph node. Location of the mass and feel are important here. Most neck nodes lie in two major anatomical areas referred to as the anterior and posterior triangles (figure 4). The distribution of lymph nodes in the anterior triangle resembles a tilted T extending from the tragus to the sternal notch, anterior to the sternocleidomastoid and along the lower edge of the mandible. The distribution of nodes in the posterior triangle, below the sternocleidomastoid, is L-shaped and follows the spinal accessory nerve and the external jugular vein.

Remember to seat the patient in a chair and stand behind to examine nodes in the neck. Look for consistency, size, tenderness, fluctuance, and whether they are single or matted. The salivary and parotid glands can be confused with lymph nodes, especially in elderly patients. These can be ptotic and palpable without being diseased. Bimanual palpation with one finger in the patient's mouth and another external over the area of the submandibular gland can often delineate gland anatomy. The parotid can sometimes be defined better with forward traction on preauricular skin.

If the lump is a node, the area it drains must be examined to locate a primary source. Nodes in the anterior triangle subserve the anterior third of the scalp as well as facial structures, oral cavity, pharynx, thyroid, salivary gland and sinus cavities. Nodes in the posterior triangle drain the posterior two-thirds of the scalp and nasopharynx. In general, nodes in the upper parts of the neck arise from head

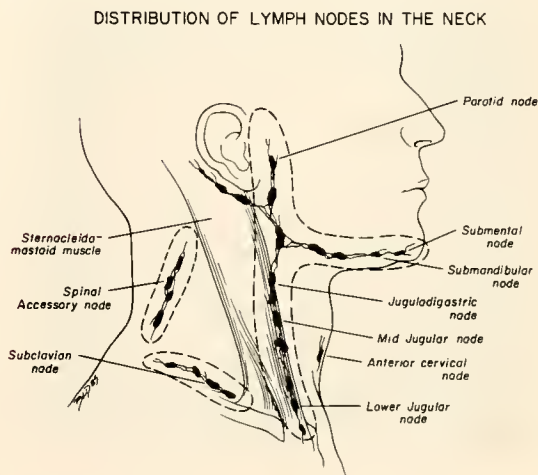


Figure 4. Distribution of lymph nodes in the neck.

and neck primaries while lower neck nodes arise from an infraclavicular site. A left supraclavicular node ("Virchow's node") raises the question of an abdominal primary. Midline or paratracheal sites suggest larynx, thyroid, or pulmonary sites. Bilateral nodes can mean lymphoma or a supraglottic, base of tongue, or anterior oral cavity primary since these structures have bilateral lymph drainage. In our patient the mass appeared to be beneath the sternocleidomastoid and did not feel like a node.

A second important observation is whether or not the mass moves with swallowing. Structures belonging to, or attached to, the upper aerodigestive tract move up and down with swallowing. The upper aerodigestive tract is the funnel-shaped group of organs (pharynx, larynx, trachea, and thyroid) suspended from the hyoid bone. The only nodes in this tract are the delphian nodes in the thyrohyoid membrane, which can be enlarged with thyroid or laryngeal cancer. Since the mass in our patient did not move with swallowing, we concluded that it was not part of the aerodigestive tract.

Next one must decide whether the mass is of blood vessel origin. These are peripheral to the visceral funnel, are usually pulsatile, occasionally are associated with a bruit, and can usually be moved side to side, but not up and down because they are attached to the carotid sheath. Carotid body tumors and chemodectomas occur frequently at the bifurcation of the common carotid. The lump in our patient had displaced the left carotid anteriorly but the artery itself did not appear to be enlarged and contained no bruit. Although it appeared intimately involved with the carotid artery, it could be moved side to side and up and down.

The nasopharynx and base of the tongue must also be examined. Tumors of the tongue can be submucosal and be missed by visual inspection, even with mirrors. Some of these can be felt with a digital examination. If a node contains metastatic cancer for which no primary source is found, blind biopsy of the base of the tongue may be indicated.

At the end of the history and physical, we were certain only that our patient had a mass beneath the left sternocleidomastoid muscle in the middle third of the neck. It seemed close to but distinct from the thyroid gland and close to but distinct from the carotid artery. Because of the uncertainty, x-ray and laboratory tests were performed.

Thyroid scan did not demonstrate the mass. There was decreased uptake in the left lower pole but it wasn't certain that this was due to the lump in question as no mass could be felt in the thyroid.

Ultrasonography was considered but omitted because the mass lay deep in the neck and ultrasonography works better for lesions closer to the surface.⁵ Computed tomographic (CT) scan can define the extent of soft tissue involvement and altered anatomical relationships in many patients with neck masses; when used with contrast it can define relationships to the major vessels.⁶ In this case, although the extent was well defined by CT scan, the origin of the mass could not be clearly defined, especially whether or not it arose from the thyroid gland. It did appear vascular and an arteriogram confirmed this. Its blood supply came from the left inferior and superior thyroidal arteries but on physical examination it felt clearly distinct from the thyroid. Since it

did not appear to be a metastatic node, but rather a primary tumor, the next step was an excisional biopsy which revealed a benign paraganglioma.

Case 2

A 75-year-old woman came to the medical clinic complaining of severe cough, especially when supine, and difficulty swallowing solids and liquids. She had some pain in her throat, hoarseness, weight loss, and a fullness in her neck but no fever, chills, abdominal pain, nausea, vomiting, diarrhea, constipation, or skin changes. On physical examination she was anxious and chronically ill-appearing. Vital signs were normal except for tachypnea (24 breaths per minute). Head, eyes, nose, and throat were normal. Neck examination revealed a fullness in the area of the thyroid. The thyroid was easily palpable, firm, non-nodular, and minimally enlarged. The thyroid and larynx were pushed forward. Her voice was hoarse. Lung examination revealed stridorous breathing and a brassy cough, especially when recumbent. High pitched wheezing primarily on inspiration but also on expiration was heard over the larynx, but the lungs were clear. The remainder of the examination was normal.

Comments

Table 1 lists clues derived from a patient history that can help to localize the probable site of a neck mass and its nature. Careful questioning is imperative but not always easy. Patients may not always formulate their complaint with precision and physicians may not always critically evaluate the complaint. When questioned carefully, our patient demonstrated several of the classic symptoms of head and neck disease. She complained of difficulty swallowing both solid and liquid meals but not saliva between meals. This latter point helps to differentiate true dysphagia from globus hystericus or postnasal drip which can cause a vague sensation of difficult swallowing but tends to occur between meals. Of course, with nearly complete obstruction of the esophagus the patient can have difficulty swallowing even oral secretions. Our patient localized her site of obstruction to the back of her throat rather than the lower

Table 1
Neck Masses:
Useful Clues from the History

Risk Factors Associated with Increased Risk of Cancer	Increasing Age Sex — males more likely to develop lip cancer Race — whites more likely to develop lip cancer Exposure — alcohol, wood working, tanning, asbestos, x-ray, sun. Tobacco — smoking, dipping.
Historical Features That Localize Lesion	Dysphagia Odynophagia Referred pain Hoarseness Respiratory Stridor Cough

esophagus or stomach. Patients can often localize well the area of disease when the site is above the upper esophageal sphincter but not as well when below. She had some weight loss, ate slowly, and tended to choke on her food which supported the interpretation of true dysphagia. Painful swallowing (odynophagia) also helps to distinguish local structural disease from globus hystericus. It suggests conditions such as lingual tonsillitis or neoplasms of pharynx, larynx, oral cavity, or tongue. Because of the distribution of cranial nerves V, IX, and X, painful swallowing can be felt in the ear, but our patient did not have this problem.

Hoarseness with a mass in the neck strongly suggests cancer (causing vocal cord or recurrent laryngeal nerve dysfunction). Inspiratory stridor, diagnostic of upper airway obstruction, is produced when a soft tissue obstruction collapses into the airway on inspiration and vibrates. In expiration the positive air pressure forces soft tissues apart and decreases the vibration. Lower airway obstructions behave oppositely in that on inspiration the airways open, while on expiration they tend to collapse leading to increased vibration and stridor. Tracheal stridor tends to be present on both inspiration and expiration. Our patient had inspiratory stridor placing the lesion in the laryngeal area. The symptoms strongly suggested cancer.

Indirect laryngoscopy revealed a paralyzed vocal cord, but no mass, thus implicating recurrent laryngeal nerve pressure. Soft tissue lateral x-ray of the neck confirmed the presence of a mass in the area of the thyroid, behind the trachea (figure 5). Barium swallow showed a marked extrinsic obstruction of the upper esophagus (figure 6). Chest x-ray was normal. Thyroid scan showed no uptake in the left lobe, suggesting that the mass might be of thyroid origin. While the evaluation was in progress, the patient had a cardiac arrest and died. Autopsy showed anaplastic carcinoma of the thyroid with metastases to bone and liver, skull, and lymph nodes.



Figure 5. Soft tissue x-ray of neck demonstrating mass (arrows).



Figure 6. Barium swallow of patient 2 demonstrates near obstruction of esophagus at level of thyroid.

Case 3

A 35-year-old woman was noted by friends to have a slightly asymmetrical neck. She then noted a slight, painless swelling below the left sternocleidomastoid muscle. She had no symptoms. She had been treated with I^{131} for hyperthyroidism several years previously and now took standard doses of thyroxine to maintain euthyroidism.

On physical examination the left sternocleidomastoid was more prominent than the right. No definite margins could be palpated and there was no discoloration, ecchymoses, or erythema. No thyroid tissue could be felt. Ultrasonography of the neck showed a cystic mass, compatible

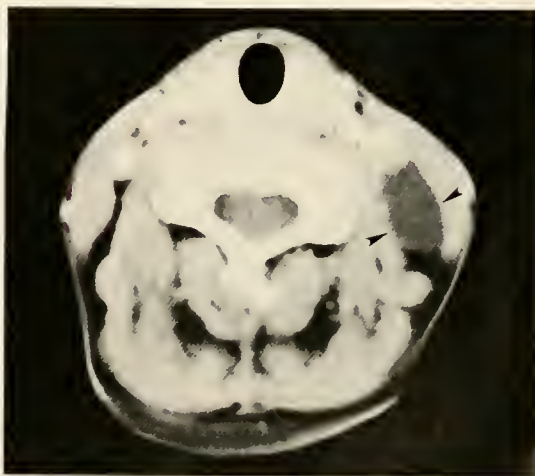


Figure 7. Computed tomogram of neck in patient 3 demonstrating cystic mass (arrows) in posterior triangle.

with a branchial cleft cyst or possibly with a dilated jugular venous structure.

Comment

In distinction to our other two patients, neither history or physical examination gave specific clues as to the etiology of the prominent sternocleidomastoid in this patient. The lack of symptoms and findings suggested a benign process, such as thyroglossal duct cyst, branchial cleft cyst, sialolithiasis, sialadenitis, cervical adenopathy, chemodectoma, laryngocoele or pharyngocoele.

CT scan of the neck (figure 7) showed a cystic structure beneath the sternocleidomastoid which appeared to be a cystic hygroma. This was removed surgically; the pathologist confirmed the diagnosis of a cystic hygroma. The patient has done well since.

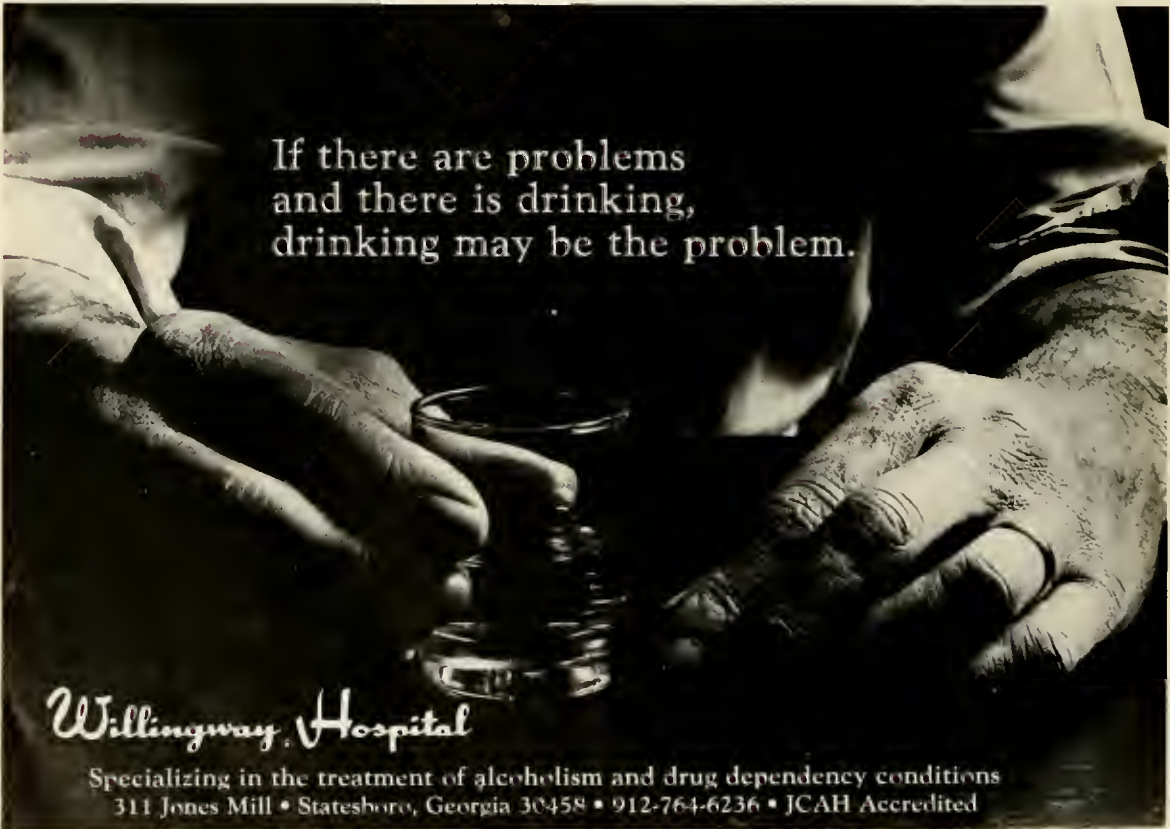
Summary

Primary care physicians see most adult patients with a

lump in the neck. Knowledge of the epidemiology of neck masses, the anatomy of the neck, the appropriate use of history and physical examination, and the capabilities of imaging techniques is essential to choosing appropriate diagnostic strategies for these patients.

References

1. Simpson GT. The evaluation and management of neck masses of unknown etiology. *Otol Clin North Am* 1980;13:489-98.
2. Keene WM, Atkins JP, Wetmore R, Vidas M. Epidemiology of head and neck cancer. *The Laryngoscope* 1981;91:2037-45.
3. Salem BS, Schrader KE, Mair IWS. Differential diagnosis of a mass in the upper lateral neck. *J Laryngol Otol* 1981;95:1041-47.
4. Decker J, Goldstein JC. Risk factors in head and neck cancer. *N Engl J Med* 1982;306:1151-54.
5. Pogrel MA. The use of ultrasonography in the diagnosis of neck lumps. *J Oral Maxillofacial Surg* 1982;40:794-6.
6. Mancuso AA, Harnsberger HR, Murah AJ, Stevens MH. Computed tomography of cervical and retropharyngeal lymph nodes. Normal anatomy, variants of normal, and applications in staging head and neck cancer. Part II: Pathology. *Radiology* 1983;148:715-23.
7. Moloy P. How to (and how not to) manage the patient with a lump in the neck. *Prim Care* 1982;9:269-89.



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Country Doctoring in North Carolina Dr. J. H. Ellington and Changing Times

Paul I. Crellin

Please come and see my wife. She is in a bad condition. She is nearly in the fit that Bill Ward's wife was and I want you to come just as soon as you get this and see her. And I will pay you for your visit. If you can't wait till I sell my tobacco I will pay you in corn as soon as I can gather my corn. Please come at once.

Dr. James H. Ellington (1850-1929) responded to countless such undated requests during his fifty-seven years of rural practice from 1872 until his death in 1929. Practicing in and around Sandy Ridge, which lies in a sparsely populated part of Stokes county near the Virginia border, during a time of rapid change in medicine, he established an enviable local reputation. Nowadays the "old-time" country doctor tends to evoke a great deal of nostalgia, even though little is known about the life and practices of most of them. James Ellington is different. While he left no printed record of his attitudes and approaches toward medicine, his papers, letters, student lectures notes, ephemera, books and artifacts have survived, many still in the trunk he had as a medical student from 1870 to 1872. Even his white frame, single-room office remains as it was on the grounds of his large house and farm (figure 1). Inside, as of early 1985, amid fifty years of dust and dirt, are remains of his practice: bottles of medicine, books, calendars, journals, and a profusion of medical instruments, including a scarificator for blood-letting.

Ellington's medical education in the late 1860s and early 1870s was typical of the time: an apprenticeship, of which no details have been found, followed by two five-month sessions at medical school. On September 14, 1870, Ellington received a letter of acceptance from the Washington University School of Medicine in Baltimore informing him that he was admitted with a scholarship to the next course of lectures beginning on October 1. Information about the curriculum shows that it provided a solid education with emphasis on clinical medicine. Ellington's own notes suggest that he was taught to critically assess existing medical practices and not to cling to established diagnoses and treatments.

Ellington's education prepared him to keep abreast of the many changes that took place in medicine during the next fifty years. His continuing contacts with colleagues and purchases of textbooks and journals suggest conscious efforts to keep up-to-date. Although he did not attend the

annual meetings of the North Carolina Medical Society, he was active in the Stokes County Medical Society, serving at times as president.

Also important in alerting him to developments — at least within therapy — was the considerable quantity of advertising mail he received from pharmaceutical companies. He kept much of it, suggesting that he hardly treated it as junk mail. Companies like Parke, Davis bombarded him in the 1890s with details of new treatments, many of them linked to the newly established germ theory: for instance, intestinal disinfection treatment for typhoid, which included the Woodbridge method. This was a complex regimen involving a mixture of capsules and tablets containing podophyllum, calomel, guaiacol carbonate, menthol and eucalyptol. In 1899, another company, Viskolein, reminded Ellington of their own typhoid treatment, which was probably similar to that of Parke, Davis. Viskolein gave no information on ingredients, only a fanfare of physicians' testimonials.

Another prominent therapeutic approach was serum therapy along with new and improved vaccines. The Mulford Company introduced the physician's "mailcard," sent out (c.1905) by druggists advertising, for example, Mulford's Glycerinized Vaccine Lymph and "points" for inoculation. "The laboratory," the card stated, "in which this vaccine is produced is the most complete in existence and is under the direction of practical and specially trained bacteriologists."

Ellington practiced through a time of growing commercialism within medicine both in the office and for home treatment. On the back of one note he received from a patient is an almanac advertisement for "Dr. Sage's Catarrh Cure." Ellington himself used physicians' day books supplied by the Pierce Medicine Co., one of the successful entrepreneurs of the day, and sold proprietary products, including Pierce's, from his office-pharmacy (figure 2).

Unfortunately, Ellington's records, full of family matters and business arrangements, do not indicate whether his clinical skills changed during fifty years of practice. Certainly he never undertook much surgery, probably only performing minor procedures like suturing cuts and remov-

From the Country Doctor Museum, Bailey 27807.



Figure 1. Dr. J. H. Ellington's one-room office. Photo taken in January 1985.



Figure 2. Interior of the office, showing medicine bottles and counter (January 1985).

ing buckshot. Rather than performing "kitchen table" surgery as described in Nicholas Senn's *Practical Surgery for the General Practitioner* (Philadelphia, 1901), he referred patients to Drs. Wesley Long and Reeves of Greensboro.

No diagnostic aids like a microscope (to examine urine deposits and sputum for tuberculosis organisms) or sphygmomanometers have been found in the office; on the other hand, records of his stock of medicines, a few surviving prescriptions and the numerous bottles in the office suggest a sense of eclecticism and a willingness to try new remedies. His notes record many polypharmaceutical preparations, then declining in popularity. One was a "tonic cholagogue" containing quinine sulphate, extract of leptandrin, tincture of stillingia, extract of podophyllin, oil of sassafras, oil of gaultheria all in cinnamon water.

Ellington purchased his medicines from such local companies as the Richardson Drug Co. of Greensboro, famed for the manufacture of Vick's products, and from major pharmaceutical companies like Massengill of Tennessee. From the latter he bought large quantities of one of the most interesting of medicines, the obnoxious, garlicky-smelling asafetida. However, he bought it as "tasteless" pills and probably employed it as a mild sedative for "nervous complaints" and as a general antispasmodic. Much of its local popularity was probably linked with its reputation among many Southerners as a cure-all. Children often hung a small lump in a sack around the neck.

Ellington's considerable range of medicines certainly allowed him to tailor prescriptions to the whims of patients. Judging from the number of housecalls he made — averag-

ing three to four a day for long periods — he probably knew his patients well. Personal consideration for patients is considered one of the hallmarks of country doctors, implying, often unfairly, that other attributes such as clinical skills in diagnosis and therapy were commonly behind the times. While the richness of Ellington's surviving personalia is frustratingly bare of clinical details about his practice, it suggests that his reputation rested on more than good bedside manners.

From all the available evidence, comments made in 1912 about Ellington the man may reflect the attitudes of Ellington the physician concerned with keeping up with medical progress during the progressive era: "Dr. Ellington has been, and is yet, one of our most valuable assets to citizenship. He has seen the dawn of a better day in our country. For this condition he has worked faithfully for many years. Nothing daunts him yet when it comes to public-spirited work. He is just as eager to see our country progress as he ever was, and lends his influence in that direction. Constructive in his views and progressive in his acts, he is an invaluable man, doing his fellows an unspeakable amount of good."

Acknowledgment

I wish to thank Mr. John Ellington and Mrs. Maggie Ellington for generous access to the Ellington manuscripts and artifacts. Mrs. Ellington's hospitality added much to capturing the ethos of country doctoring in Sandy Ridge. Access to the material was facilitated by accession list prepared by Dr. David Hall when a medical student at Duke University.

*Biographical note: The library of the Country Doctor Museum has a policy of collecting the scattered autobiography and biography of Country Doctors.

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The Do's and Don'ts of Responsible PA Practice

James E. Hill, Jr., P.A.-C., M.Ed.

- *The physician/physician assistant team requires dotted i's, crossed t's and careful attention to detail. See the accompanying editorial by F. Maxton Mauney, Jr., M.D. on page 609.*

“**A**IDING and abetting the illegal practice of medicine.” That’s a frightening statement to hear, particularly if you’re a physician and the statement is made by the North Carolina Board of Medical Examiners (BME). Unfortunately, the rare physicians guilty of such an act may be in trouble, not because of purposely setting out to break the law, but because of having utilized their PAs without carefully checking the rules. The PAs involved in a situation like this should have known better. Common sense should dictate to them the incorrectness of certain everyday practice patterns. Unfortunately, common sense is not always common.

Here is an example of how the reality of practice can cause both physician and PA to make mistakes:

M.D.: “I’m going to Pinehurst for our annual conference so I can attend some lectures and meetings which will make me a better physician. Dr. X, who normally supervises you when I’m out of town, is going, too, so Dr. Y will be available to back you up if any problems arise in the practice.”

P.A.: “But, sir, Dr. Y is not listed with the Board of Medical Examiners as a back-up supervising physician for me.”

M.D.: “Also, in case you need to write a controlled substance prescription for any of our patients while I’m gone, I’m leaving you a few presigned prescriptions.”

P.A.: “But, sir, presigned prescriptions are against the Board’s policy and are likely to get us both in big trouble.”

M.D.: “When I get back, there will be a nice bonus for you since you’re doing this extra work for me and our patients.”

P.A.: “I don’t like this but you’re the boss. Have a good trip.”

At a spring meeting in Pinehurst between the Board of Medical Examiners and representatives of the North Carolina Academy of Physician Assistants and some of the North Carolina Physicians Assistants’ advisors, the BME members expressed their concerns about common and repetitive problems in physician/PA practices. This paper presents those problems in a “Do’s and Don’ts” format so that all of us will be clearer about an ideal practice and the

pitfalls of shortcuts in proper PA supervision. We hope the BME investigators will have much less to report and those physicians who unwittingly utilize PAs inappropriately will be forewarned.

The “Don’ts”

1) Don’t forget to notify the BME if there are deletions or additions to the supervising physician registration list or if the PA is carrying out functions not listed in the original PA application or in the most recent registration. These are simple tasks. They cost no money. And yet, many practices overlook the importance of updating with the Board of Medical Examiners the list of physicians responsible for the PA. This problem shouldn’t exist since PAs function only under the license of a physician and, more specifically, only under the license of a physician registered with the BME as supervising physician for that PA.

2) Don’t give anyone, including your PA, a presigned prescription blank. Presigned prescription blanks are a convenient way for physicians to allow their PAs to write excluded drugs (i.e., controlled substances) for patients without the trouble of signing each prescription as the need arises. It’s usually justified by saying that the relationship is stable enough for the PA to be trusted (with judgment and discretion) to write only previously agreed upon drugs and in previously agreed upon situations. This practice has its own inherent risks. The presigned prescription blanks can be mislaid or stolen and can then be used by those with sociopathic tendencies for the *carte blanche* privilege of writing their favorite mind or mood altering drug. That’s a risk no physician or PA should take and it can be prevented simply by having the PA fill out a prescription for a needed controlled substance, sign it, and then have the physician sign it *after reviewing the need*. The PA’s signature lets the pharmacist know that the physician and PA collaborated in writing the prescription.

3) Don’t let your PA write a prescription for medications that are specifically excluded on the Formulary. Another area of question concerning prescriptions deals with excluded drugs other than controlled substances and with the issue of refills. A PA cannot write for an excluded drug (like Coumadin or Vistaril) and cannot authorize refills on a prescription *except* when he writes for that drug or authorizes refills *on the order of the supervising physician*. The supervising physician need not sign the prescription in these cases but the letter of the law requires the physician to verbally authorize the drug or refill each time it’s given. It

From the Department of Emergency Medicine, Charlotte Memorial Hospital, 1000 Blythe Boulevard, Charlotte 28234.

cannot be a standing order and the PA must write the prescription as a "verbal order of" the physician. For example, the signature area would look like this: "J. Hill, P.A.-C. per verbal order of J. Baker, M.D." Of course, this procedure *cannot* be done for controlled substances since they require a physician's signature.

4) Don't permit your PA employee to replace you as a supervising physician for PA students from Duke University Medical Center or Bowman Gray School of Medicine. Both have excellent programs and both programs use physicians in private practice across the state as preceptorships for the clinical phase of training. Some of these practices already have graduate PAs working in them. The BME has discovered that sometimes the graduate PA is primary supervisor of the PA student. The physician employer sees only the complicated cases of the student. Just as the decision to add a graduate PA to the staff must be made with the best interests of the patient and practice in mind, the decision to add PA students to the practice setting must be made only if the physician has the time and interest to adequately supervise the student's activities. This is not to say that a graduate PA in the practice cannot be used as a role model for a student, allowing him to witness the real world of a physician/PA team at work.

5) Don't allow your PA to sign prescriptions for PA students or medical students. The author has been actively involved as an officer or committee chairman in our state's professional academy since 1977 and has worked as a PA in this state's largest emergency department since 1976. Those of us who met with the BME this spring thought that we had seen and heard it all but the Board reported to us an activity that surprised me. It seems that an occasional PA graduate working with PA students provided them with prescriptions for commonly used antibiotics and other medicines. They ignored the requirement that each prescription has to be signed at the time the patient is seen. This is a rare occurrence but the fact that it happens at all suggests that some PAs are not taking the privilege of prescription writing as seriously as they should. Although some situations and practices fall in an ethical gray zone, this one is definitely black and should not be tolerated by physician or PA.

The Do's

1) Do review and countersign promptly those medical records written by your PA. Chart review is one of the primary methods physicians use to supervise their PAs. It's also an excellent opportunity to give your PA feedback, both positive and negative. The rule is that this review must take place within 24 hours of the PA/patient contact. To address a special problem posed by some practices, the BME let us know that they're understanding enough to recognize the difficulty met by physicians and PAs when a PA sees a patient in the office late Friday afternoon while the physician is making rounds in the hospital. If the team doesn't meet again until Monday morning, then the 24 hour limit is "understood" to mean by the next working day. A weekend stops the clock, in other words.

2) Do register your PA with the North Carolina Board of Pharmacy if you are going to have the PA *dispense* any medications (OTC medications can be dispensed by PAs

without Board of Pharmacy permit). An occasional pharmaceutical sample may be dispensed by a PA provided it is entered on the medical record, is not a controlled substance or an excluded medication, and you countersign the record. Be aware of the definitions of "administering," "dispensing," and "prescribing" as defined by the North Carolina Board of Pharmacy.

3) Do insist that the PA who works for your practice wear a name tag which will prevent the PA from being misidentified as a physician. If life and the practice of medicine are considered a game in which the rules must be followed to play, then this next rule might sound a lot like the game of "trivial pursuit." The rule is that every PA must wear a name tag identifying himself as a "physician assistant," not just a "PA." Considering myself an empathetic observer of PA regulators, I can understand the strong feelings for this requirement. PAs perform traditional physician tasks and while most people know what "M.D." and "R.N." stand for, many people still don't know what "PA" means. The rule insures that patients and other involved parties do not confuse a PA with a physician. No PA should be permitted to avoid wearing his physician assistant name tag because of the flimsy excuse that name tags put holes in shirts, especially when clip-on name tags are available.

4) Do supervise your PA so that both you and your PA are comfortable and within safe and ethical medical practice standards in your community or hospital setting, and within the regulations of the BME and Board of Pharmacy.

5) Do encourage your PA to participate in local, state and national physician assistant organizations. Often, the annual cost of membership in such professional organizations can be offset by lower member rates at CME conferences and by having your PA sensitive to standards and changes in the PA profession.

More information about regulations or memberships can be easily obtained by writing to these addresses:

North Carolina Board of Medical Examiners
Suite 214, 222 North Person Street
Raleigh 27601
919/833-5321

North Carolina Academy of Physician Assistants
Box 27843
Raleigh 27611

North Carolina Board of Pharmacy
P.O. Box H
Carrboro 27510
919/942-4454

American Academy of Physician Assistants
Suite 300
1117 North 19th Street
Arlington, VA 22209
703/525-4200

6) Do encourage your PA to seek and maintain professional competency by participating in national certification examinations for PAs. The 24-month-long PA training program prepares a student in the basics of medicine, just as medical school provides the basics for postgraduate res-

idency training. The secret to success as a knowledgeable and well-informed graduate PA lies in the ability to be a continual student and to build on the basics taught in the didactic and clinical training of the PA school. There is a difference between having 10 years' experience and having one year's experience 10 times over. If PAs are to grow as clinicians they must read, attend conferences, view videotapes, listen to colleagues; in short, they must learn every day. One method of testing basic knowledge is through the national certification examination, given after graduation and at six year intervals for recertification. PAs and those physicians who employ PAs should emphasize

continuing medical education and national certification as a requirement for continued employment. We cannot afford to ask less of ourselves.

Resolving these problem areas will do much to make all of us better physician/PA teams. For those who feel it's all much too picky, perhaps a thought from Sir William Osler will convince you.

"Things cannot always go your way. Learn to accept in silence the minor aggravations, cultivate the gift of taciturnity and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints."

EDITORIAL

Thoughts on the PA/Physician Team

F. Maxton Mauney, Jr., M.D.

THE practical and timely paper by James E. Hill, Jr., P.A.-C. M.Ed., concerning the "Do's and Don'ts of Responsible PA Practice," is worth taking a minute to review whether you use physician "extenders" or not. For those who do use either nurse practitioners or PAs it serves to point out the most common pitfalls in this important arena of health care delivery and, in a practical, common sense manner, suggests some useful tips about strengthening and building upon what has for the most part proved to be a beneficial and effective relationship. There are currently more than 500 PAs registered under the physicians' license in North Carolina, and an additional 406 nurse practitioners are also working with physicians in our state. Approximately one out of every ten physicians licensed in the state has either direct or secondary supervision of a physician assistant.

At the time the editor of this *Journal* embarked on the formal training of assistants to the physician, I doubt that anyone would have predicted the success that this program has had, not only in North Carolina but across the country. While many are greatly concerned about the upcoming physician "glut," there are no similar concerns about class size in the 50 or so PA training programs nationwide. Several PA schools have closed in the past couple of years as manpower training grants have phased out and as the perceived needs for these talented men and women have decreased. At the same time, as Chairman of the Joint Review Committee for Physician Assistants, which reviews and accredits all PA training programs nationwide, I know that three or four prominent schools across the nation are considering establishing new PA training programs. The success that "primary care providers" and specialists in almost every field have realized with the utilization of

PAs has been enormous and far-reaching, touching all levels of the health care delivery system.

Unfortunately, as is inevitable, there have been abuses and misuse of the physician extender concept not only by the PAs and nurse practitioners themselves, but also by physicians who either misunderstand the role of the supervising physician or improperly use the "extender."

Those who have not been directly involved in this team-play hear only the loud voices of critics of the system, who are usually quite vocal. I have been privileged to participate in the development and use of the PA concept as a faculty member at Duke in the Department of Surgery in the late 1960s, as a physician and supervising employer in Asheville of a number of physician assistants since 1970, and as a representative of the American College of Surgeons on the Accreditation Review Committee for Training Programs nationwide for PAs since 1980. I have also had the opportunity of chairing the North Carolina Medical Society Committee on Allied Health, meeting with this Committee as a commissioner, and working with the North Carolina Academy of Physician Assistants as a physician advisor for several years. The commitment of the majority of PAs to maintaining excellent standards, fostering continuing medical education, and solving problems in the practice arena has been exemplary. Very few groups of allied health professionals strive any harder to develop close, collaborative and dependent relationships with physicians than the PAs in this state. We as physician employers and supervising doctors need to be pro-active and understanding in learning how to use PAs appropriately without putting them out on a limb with the bad habits listed under the "don'ts" in this timely paper.

Jim Hill and his colleagues are to be commended for their honesty and openness in communicating the issues to all physicians.

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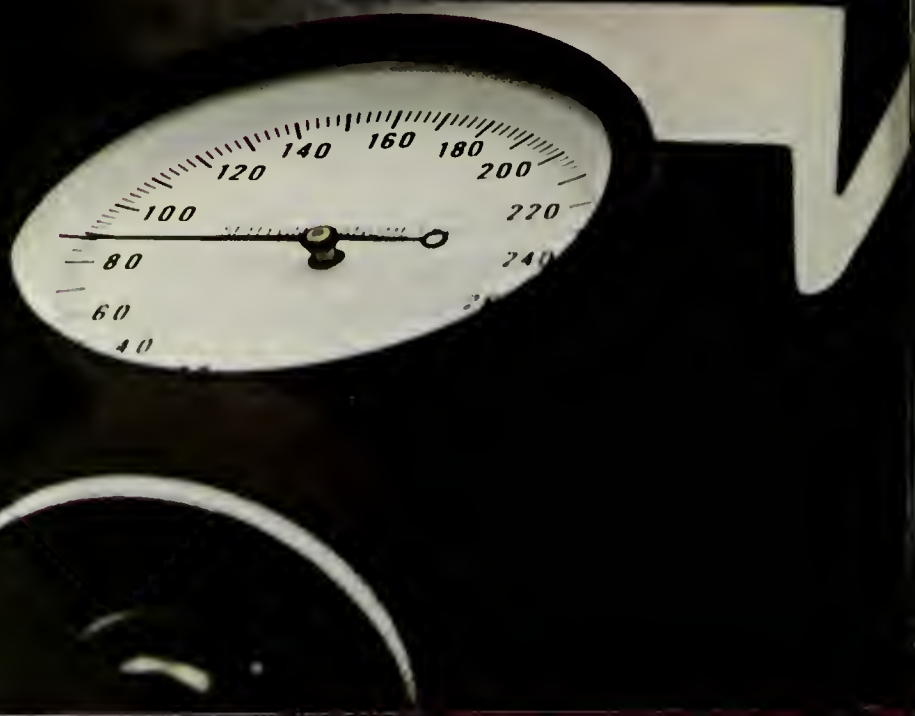
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BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULAR)

INDERAL[®] LA is a brand of propranolol hydrochloride (Long Acting Capsules).

DESCRIPTION: INDERAL LA is formulated to provide a sustained release of propranolol hydrochloride. INDERAL LA is available as 80 mg, 120 mg, and 160 mg capsules.

CLINICAL PHARMACOLOGY: INDERAL is a nonselective beta-adrenergic receptor blocking agent possessing no other autonomic nervous system activity. It specifically competes with beta-adrenergic receptor stimulating agents for available receptor sites. When access to beta-receptor sites is blocked by INDERAL, the chronotropic, inotropic, and vasodilator responses to beta-adrenergic stimulation are decreased proportionately.

INDERAL LA Capsules (80, 120, and 160 mg) release propranolol HCl at a controlled and predictable rate. Peak blood levels following dosing with INDERAL LA occur at about 6 hours and the apparent plasma half-life is about 10 hours. When measured at steady state over a 24-hour period the areas under the propranolol plasma concentration-time curve (AUCs) for the capsules are approximately 60% to 65% of the AUCs for a comparable divided daily dose of INDERAL tablets. The lower AUCs for the capsules are due to greater hepatic metabolism of propranolol, resulting from the slower rate of absorption of propranolol. Over a twenty-four (24) hour period, blood levels are fairly constant for about twelve (12) hours then decline exponentially.

INDERAL LA should not be considered a simple mg for mg substitute for conventional propranolol and the blood levels achieved do not match (are lower than) those of two to four times daily dosing with the same dose. When changing to INDERAL LA from conventional propranolol, a possible need for retitration upwards should be considered especially to maintain effectiveness at the end of the dosing interval. In most clinical settings, however, such as hypertension or angina where there is little correlation between plasma levels and clinical effect, INDERAL LA has been therapeutically equivalent to the same mg dose of conventional INDERAL as assessed by 24-hour effects on blood pressure and on 24-hour exercise responses of heart rate, systolic pressure and rate pressure product. INDERAL LA can provide effective beta blockade for a 24-hour period.

The mechanism of the antihypertensive effect of INDERAL has not been established. Among the factors that may be involved in contributing to the antihypertensive action are (1) decreased cardiac output, (2) inhibition of renin release by the kidneys, and (3) diminution of tonic sympathetic nerve outflow from vasomotor centers in the brain. Although total peripheral resistance may increase initially, it readjusts to or below the pretreatment level with chronic use. Effects on plasma volume appear to be minor and somewhat variable. INDERAL has been shown to cause a small increase in serum potassium concentration when used in the treatment of hypertensive patients.

In angina pectoris, propranolol generally reduces the oxygen requirement of the heart at any given level of effort by blocking the catecholamine-induced increases in the heart rate, systolic blood pressure, and the velocity and extent of myocardial contraction. Propranolol may increase oxygen requirements by increasing left ventricular fiber length, end diastolic pressure and systolic ejection period. The net physiologic effect of beta-adrenergic blockade is usually advantageous and is manifested during exercise by delayed onset of pain and increased work capacity.

In dosages greater than required for beta blockade, INDERAL also exerts a quinidine-like or anesthetic-like membrane action which affects the cardiac action potential. The significance of the membrane action in the treatment of arrhythmias is uncertain.

The mechanism of the antianginal effect of propranolol has not been established. Beta-adrenergic receptors have been demonstrated in the pial vessels of the brain.

Beta receptor blockade can be useful in conditions in which, because of pathologic or functional changes, sympathetic activity is detrimental to the patient. But there are also situations in which sympathetic stimulation is vital. For example, in patients with severely damaged hearts, adequate ventricular function is maintained by virtue of sympathetic drive which should be preserved. In the presence of AV block, greater than first degree, beta blockade may prevent the necessary facilitating effect of sympathetic activity on conduction. Beta blockade results in bronchial constriction by interfering with adrenergic bronchodilator activity which should be preserved in patients subject to bronchospasm.

Propranolol is not significantly dialyzable.

INDICATIONS AND USAGE: **Hypertension:** INDERAL LA is indicated in the management of hypertension, it may be used alone or used in combination with other antihypertensive agents, particularly a thiazide diuretic. INDERAL LA is not indicated in the management of hypertensive emergencies.

Angina Pectoris Due to Coronary Atherosclerosis: INDERAL LA is indicated for the long-term management of patients with angina pectoris.

Migraine: INDERAL LA is indicated for the prophylaxis of common migraine headache. The efficacy of propranolol in the treatment of a migraine attack that has started has not been established and propranolol is not indicated for such use.

Hypertrophic Subaortic Stenosis: INDERAL LA is useful in the management of hypertrophic subaortic stenosis, especially for treatment of exertional or performance stress-induced angina, palpitations, and syncope. INDERAL LA also improves exercise performance. The effectiveness of propranolol hydrochloride in this disease appears to be due to a reduction of the elevated outflow pressure gradient which is exacerbated by beta-receptor stimulation. Clinical improvement may be temporary.

CONTRAINDICATIONS: INDERAL is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with INDERAL.

WARNINGS: **CARDIAC FAILURE:** Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or INDERAL should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some instances, myocardial infarction, about the discontinuance of INDERAL therapy. Therefore, when discontinuance of INDERAL is planned the dosage should be gradually reduced over at least a few weeks, and the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If INDERAL therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute INDERAL therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema): PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. INDERAL should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

INDERAL (propranolol HCl), like other beta blockers, is a competitive inhibitor of beta-receptor agonists and its effects can be reversed by administration of such agents, e.g., dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in starting and maintaining the heartbeat has also been reported with beta blockers.

DIABETES AND HYPOGLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin.

THYROID DYSFUNCTION: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

PRECAUTIONS: General: Propranolol should be used with caution in patients with impaired hepatic or renal function. INDERAL (propranolol HCl) is not indicated for the treatment of hypertensive emergencies.

Beta adrenoceptor blockade can cause reduction of intraocular pressure. Patients should be told that INDERAL may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

Clinical Laboratory Tests: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs such as reserpine should be closely observed if INDERAL is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity which may result in hypotension, marked bradycardia, vertigo, syncope attacks, or orthostatic hypotension.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

Teratogenicity: Pregnancy Category C. INDERAL has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximum recommended human dose.

There are no adequate and well-controlled studies in pregnant women. INDERAL should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers: INDERAL is excreted in human milk. Caution should be exercised when INDERAL is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

Cardiovascular: bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometric tests.

Gastrointestinal: nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: bronchospasm.

Hematologic: agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-Immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: alopecia, LE-like reactions, psoriasis-like rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, mucous membranes and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

DOSEAGE AND ADMINISTRATION: INDERAL LA provides propranolol hydrochloride in a sustained-release capsule for administration once daily. If patients are switched from INDERAL tablets to INDERAL LA capsules, care should be taken to assure that the desired therapeutic effect is maintained. INDERAL LA should not be considered a simple mg for mg substitute for INDERAL. INDERAL LA has different kinetics and produces lower blood levels. Retitration may be necessary to maintain effectiveness at the end of the 24-hour dosing interval.

HYPERTENSION—Dosage must be individualized. The usual initial dosage is 80 mg INDERAL LA once daily, whether used alone or added to a diuretic. The dosage may be increased to 120 mg once daily or higher until adequate blood pressure control is achieved. The usual maintenance dosage is 120 to 160 mg once daily. In some instances a dosage of 640 mg may be required. The time needed for full hypertensive response to a given dosage is variable and may range from a few days to several weeks.

ANGINA PECTORIS—Dosage must be individualized. Starting with 80 mg INDERAL LA once daily, dosage should be gradually increased at three to seven day intervals until optimum response is obtained. Although individual patients may respond at any dosage level, the average optimum dosage appears to be 160 mg once daily. In angina pectoris, the value and safety of dosage exceeding 320 mg per day have not been established.

If treatment is to be discontinued, reduce dosage gradually over a period of a few weeks (see WARNINGS).

MIGRAINE—Dosage must be individualized. The initial oral dose is 80 mg INDERAL LA once daily. The usual effective dose range is 160-240 mg once daily. The dosage may be increased gradually to achieve optimum migraine prophylaxis. If a satisfactory response is not obtained within four to six weeks after reaching the maximum dose, INDERAL LA therapy should be discontinued. It may be advisable to withdraw the drug gradually over a period of several weeks.

HYPERTROPHIC SUBAORTIC STENOSIS—80-160 mg INDERAL LA once daily.

PEDIATRIC DOSAGE—At this time the data on the use of the drug in this age group are too limited to permit adequate directions for use.

REFERENCES

- Holland OB, Nixon JV, Kuhnert L: Diuretic-induced ventricular ectopic activity. *Am J Med* 1981;70:762-768.
- Holme I, Helgeland A, Hjermann I, et al: Treatment of mild hypertension with diuretics. The importance of ECG abnormalities in the Oslo study and in MRFIT. *JAMA* 1984;251:1298-1299.

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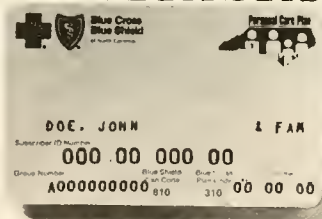
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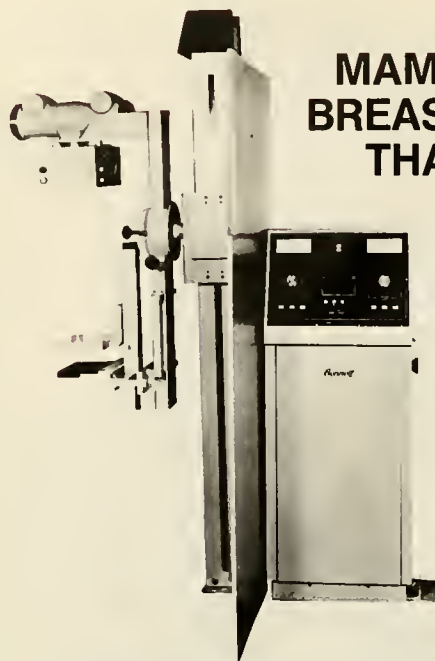
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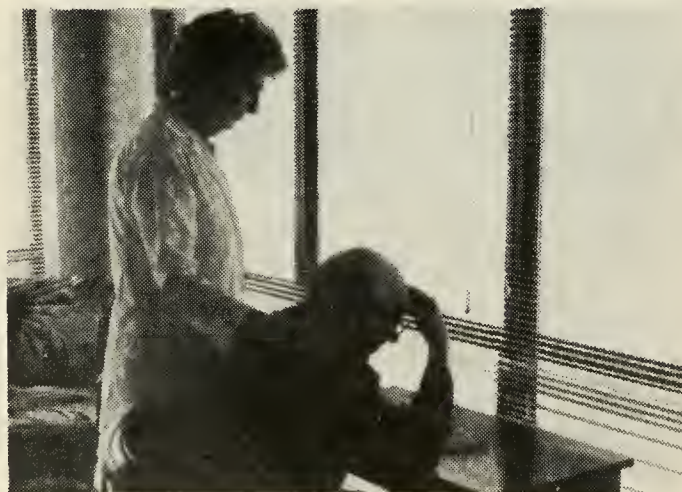
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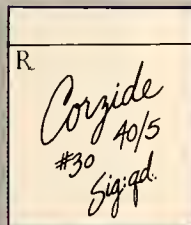
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SQUIBB

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*Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure.
The 1984 report of the Joint National Committee on Detection, Evaluation and Treatment of
High Blood Pressure. Arch Intern Med 144:1045-1057, 1984.

Please see brief summary of prescribing information on following page

CORZIDE®

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CORZIDE® 80/5
Nadolol-Bendroflumethiazide Tablets

DESCRIPTION: CORZIDE (Nadolol-Bendroflumethiazide Tablets) for oral administration combines two antihypertensive agents: CORGARD® (nadolol), a nonselective beta-adrenergic blocking agent, and NATURETIN® (bendroflumethiazide), a thiazide diuretic antihypertensive. Formulations: 40 mg and 80 mg nadolol per tablet combined with 5 mg bendroflumethiazide.

CONTRAINDICATIONS: Nadolol — Bronchial asthma, sinus bradycardia and greater than first degree conduction block, cardiogenic shock, and overt cardiac failure (see WARNINGS). Bendroflumethiazide — Anuria, and in those with previous hypersensitivity to bendroflumethiazide or other sulfonamide-derived drugs.

WARNINGS: Nadolol — **Cardiac Failure** — Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta-blockade may precipitate more severe failure. Although beta-blockers should be avoided in overt congestive heart failure, if necessary, they can be used with caution in patients with a history of failure who are well compensated, usually with digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle. IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta-blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign of symptom of heart failure, digitalize and give diuretics, and closely observe response, or discontinue nadolol (gradually, if possible).

Exacerbation of Ischemic Heart Disease Following Abrupt Withdrawal — Hypersensitivity to catecholamines has been observed in patients withdrawn from beta-blocker therapy, exacerbation of angina and, in some cases, myocardial infarction have occurred after abrupt discontinuation of such therapy. When discontinuing chronic use of nadolol, particularly in patients with ischemic heart disease, gradually reduce dosage over a 1- to 2-week period and carefully monitor the patient. Reinitiate nadolol promptly (at least temporarily) and take other measures appropriate for management of unstable angina if angina markedly worsens or acute coronary insufficiency develops. Warn patients not to interrupt or discontinue therapy without physician's advice. Because coronary artery disease is common and may be unrecognized, it may be prudent not to discontinue nadolol therapy abruptly even in patients treated only for hypertension.

Nonallergic Bronchospasm (e.g., chronic bronchitis, emphysema) — PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD IN GENERAL NOT RECEIVE BETA BLOCKERS. Administer nadolol with caution since it may block bronchodilation produced by endogenous or exogenous catecholamine stimulation of beta₂ receptors. **Major Surgery** — Because beta-blockade impairs the ability of the heart to respond to reflex stimuli and may increase the risks of general anesthesia and surgical procedures, resulting in protracted hypotension or low cardiac output, it has generally been suggested that such therapy should be withdrawn several days prior to surgery. Recognition of the increased sensitivity to catecholamines of patients recently withdrawn from beta-blocker therapy, however, has made this recommendation controversial. If possible, withdraw beta-blockers well before surgery takes place. In emergency surgery, inform the anesthesiologist that the patient is on beta-blocker therapy. Use of beta-receptor agonists such as isoproterenol, dopamine, dobutamine, or levaterenol can reverse the effects of nadolol. Difficulty in restarting and maintaining the heart beat has also been reported with beta-adrenergic receptor blocking agents. **Diabetes and Hypoglycemia** — Beta-adrenergic blockade may prevent the appearance of premonitory signs and symptoms (e.g., tachycardia and blood pressure changes) of acute hypoglycemia. This is especially important with labile diabetics. Beta-blockade also reduces release of insulin in response to hyperglycemia, therefore, it may be necessary to adjust dose of antidiabetic drugs. **Thyrotoxicosis** — Beta-adrenergic blockade may mask certain clinical signs (e.g., tachycardia) of hyperthyroidism. To avoid abrupt withdrawal of beta-adrenergic blockade which might precipitate a thyroid storm, carefully manage patients suspected of developing thyrotoxicosis.

Bendroflumethiazide — Use with caution in severe renal disease. In patients with renal disease, azotemia may be precipitated. With impaired renal function, effects of the drug may be cumulative. Use with caution in impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma. Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma. Possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

PRECAUTIONS: General — Nadolol — Use with caution in patients with impaired hepatic or renal function (see DOSAGE AND ADMINISTRATION).

Bendroflumethiazide — At appropriate intervals, perform serum electrolytes determination to detect possible electrolyte imbalance warning signs of which are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and G.I. disturbances such as nausea and vomiting. Observe patients for clinical signs of fluid or electrolyte imbalance, namely, hyponatremia, hypochloremic alkalosis, hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Drugs such as digitalis may influence serum electrolytes. Hypokalemia may develop, especially with brisk diuresis, in presence of severe cirrhosis. Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Response of the heart to toxic effects of digitalis can be exaggerated with hypokalemia. Use potassium supplements such as high potassium foods to avoid or treat hypokalemia. Any chloride deficit is generally mild and usually does not require specific therapy except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction rather than salt administration except in rare instances when the hyponatremia is life threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain thiazide-treated patients. Latent diabetes mellitus may become manifest with thiazide therapy. Antihypertensive effects of bendroflumethiazide may be enhanced in the postmyectomy patient.

Careful reappraisal of therapy and consideration given to withholding or stopping diuretic therapy is necessary if rising nonprotein nitrogen or BUN (indicative of progressive renal impairment) occurs. Thiazides may decrease serum PBI levels without signs of thyroid disturbance. Thiazides decrease calcium excretion. Pathologic changes in parathyroid gland with hypercalcemia and hypophosphatemia have been occasionally observed with prolonged therapy. Common complications of hyperparathyroidism have not been seen.

Information for Patients — Warn patients, especially those with evidence of coronary artery insufficiency, against interruption or discontinuation of nadolol without physician's advice. Although cardiac failure rarely occurs in properly selected patients, advise patients being treated with beta-adrenergic blocking agents to consult physician at the first sign or symptom of impending failure. Advise patient of proper course of dose incontinently missed.

Laboratory Tests — Regularly monitor serum and urine electrolyte levels (see WARNINGS, Bendroflumethiazide, and PRECAUTIONS, General, Bendroflumethiazide).

Drug Interactions — Nadolol — When administered concurrently the following drugs may interact with beta-adrenergic blocking agents. **Anesthetics, general** — exaggeration of anesthetic-induced hypotension (see WARNINGS, Nadolol, Major Surgery). **Antidiabetic drugs (oral agents and insulin)** — hypoglycemia or hyperglycemia; adjust antidiabetic drug dosage accordingly (see WARNINGS, Nadolol, Diabetes and Hypoglycemia). **Catecholamine-depleting drugs (e.g., reserpine)** — additive effect, monitor closely for evidence of hypotension and/or excessive bradycardia.

Bendroflumethiazide — When administered concurrently the following drugs may interact with thiazide diuretics. **Alcohol, barbiturates, or narcotics** — may potentiate orthostatic hypotension. **Antidiabetic drugs (oral agents and insulin)** — thiazide-induced hyperglycemia may require adjustment of antidiabetic drug dosage. **Other antihypertensive drugs** — additive or potentiated effect. **Corticosteroids, ACTH** — intensified electrolyte depletion, particularly hypokalemia. **Ganglionic or peripheral adrenergic blocking drugs** — potentiated effect. **Preanesthetic and anesthetic agents** — effects may be potentiated, adjust dosage accordingly. **Pressor amines (e.g., norepinephrine)** — possible decrease response but not sufficient to preclude their use. **Skeletal muscle relaxants, nondepolarizing (e.g., tubocurarine)** — possible increased response.

Drug/Laboratory Test Interactions — Discontinue thiazides before tests for parathyroid function (see PRECAUTIONS, General, Bendroflumethiazide).

Carcinogenesis, Mutagenesis, Impairment of Fertility — Nadolol — In 1 to 2 years oral toxicologic studies in mice, rats, and dogs, nadolol did not produce significant toxic effects. In 2-year oral carcinogenic studies in rats and mice, nadolol did not produce neoplastic, preneoplastic, or nonneoplastic pathologic lesions. **Bendroflumethiazide** — Long-term studies in animals have not been performed.

Pregnancy Teratogenic Effects — Nadolol — Category C. In animal reproduction studies with nadolol, evidence of embryo- and fetotoxicity was found in rabbits, but not in rats or hamsters, at doses 5 to 10 times greater (on a mg/kg basis) than the maximum indicated human dose; no teratogenic potential was seen in any of these species. There are no well-controlled studies in pregnant women; therefore, use nadolol in pregnant women only if potential benefit justifies potential risk to the fetus. **Bendroflumethiazide** — Category C. Animal reproduction studies have not been conducted. This drug's effect on the fetus when administered to a pregnant woman or its effect on reproductive capacity is not known. Bendroflumethiazide should be given to a pregnant woman only if clearly needed. **Nonteratogenic Effects** — Since thiazides cross the placental barrier and appear in cord blood, weigh anticipated benefit of the drug in pregnant women against possible hazards to the fetus, these hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other reactions which have occurred in adults.

Nursing Mothers — Both nadolol and bendroflumethiazide are excreted in human milk. Because of the potential for serious adverse reactions in nursing infants either discontinue nursing or discontinue therapy, taking into account the importance of CORZIDE (Nadolol-Bendroflumethiazide Tablets) to the mother.

Pediatric Use — Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: Nadolol — Most adverse effects have been mild and transient and have rarely required nadolol withdrawal. **Cardiovascular** — Bradycardia with heart rates of less than 60 beats per minute occurs commonly, and heart rates below 40 beats per minute and/or symptomatic bradycardia were seen in about 2 of 100 patients. Symptoms of peripheral vascular insufficiency, usually of the Raynaud type, have occurred in approximately 2 of 100 patients. Cardiac failure, hypotension, and rhythm/conduction disturbances have each occurred in about 1 of 100 patients. Single instances of first degree and third degree heart block have been reported; intensification of AV block is a known effect of beta-blockers (see also CONTRAINDICATIONS, WARNINGS, and PRECAUTIONS). **Central Nervous System** — Dizziness or fatigue reported in approximately 2 of 100 patients, paresthesias, sedation, and change in behavior reported in approximately 6 of 100 patients. **Respiratory** — Bronchospasm reported in approximately 1 of 100 patients (see CONTRAINDICATIONS and WARNINGS). **Gastrointestinal** — Nausea, diarrhea, abdominal discomfort, constipation, vomiting, indigestion, anorexia, bloating, and flatulence each reported in 1 to 5 of 1000 patients. **Miscellaneous** — Each of the following reported in 1 to 5 of 1000 patients: rash, pruritus, headache, dry mouth, eyes, or skin; impotence or decreased libido; facial swelling; weight gain; slurred speech, cough, nasal stuffiness, sweating, linitis, blurred vision. Although relationship to drug usage is not clear, sleep disturbances have been reported. The oculomucocutaneous syndrome associated with prazosin has not been reported with nadolol. The following adverse reactions may also occur. **Central Nervous System** — reversible mental depression progressing to catatonia, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability with slightly clonidine serum levels and plasma concentrations. **Cardiovascular** — agranulocytosis, thrombocytopenic or nonthrombocytopenic purpura. **Allergic** — fever combined with aching and sore throat, laryngospasm, respiratory distress. **Miscellaneous** — reversible alopecia, Peyronie's disease, erythematous rash, arterial insufficiency.

Bendroflumethiazide — **Gastrointestinal System** — anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis. **Central Nervous System** — dizziness, vertigo, paresthesia, headache, xanthopsia. **Hematologic** — leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia. **Dermatologic-Hypersensitivity** — purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis). **Cardiovascular** — orthostatic hypotension may occur. **Other** — hyperglycemia, glycosuria, occasional metabolic acidosis in diabetics, hyperuricemia, allergic glomerulonephritis, muscle spasm, weakness, restlessness. Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

OVERDOSE: Nadolol may cause excessive bradycardia, cardiac failure, hypotension, or bronchospasm if overdosed. Overdose of thiazides may cause lethargy, which may progress to coma within a few hours, with minimal depression of respiration and cardiovascular function and without electrolyte changes or dehydration. Gastrointestinal irritation and hypermotility may occur. Transitory increase in BUN and serum electrolyte changes may occur, especially in patients with renal impairment.

Treatment — Nadolol can be removed from the general circulation by hemodialysis. In determining duration of corrective therapy, take note of the long duration of the effect of nadolol. In addition to gastric lavage, employ the following measures, as appropriate. **Excessive Bradycardia** — Administer atropine (0.25 to 1.0 mg). If there is no response to vagal blockade, administer isoproterenol cautiously. **Cardiac Failure** — Administer a digitalis glycoside and diuretic. It has been reported that glucagon may also be useful in this situation. **Hypotension** — Administer vasopressors, e.g., epinephrine or levaterenol. (There is evidence that epinephrine may be the drug of choice.) **Bronchospasm** — Administer a beta₂-stimulating agent and/or a theophylline derivative. **Stupor or Coma** — Supportive therapy as warranted. **Gastrointestinal Effects** — Symptomatic treatment as needed. **BUN and/or Serum Electrolyte Abnormalities** — Institute supportive measures as required to maintain hydration, electrolyte balance, respiration, and cardiovascular and renal function.

DOSAGE AND ADMINISTRATION: DOSAGE MUST BE INDIVIDUALIZED. Patients with renal failure require adjustment in dosing interval, see package insert for dosage in these patients.

Caution package insert before prescribing CORZIDE (Nadolol-Bendroflumethiazide Tablets).

HOW SUPPLIED: Available as scored tablets containing 40 mg nadolol combined with 5 mg bendroflumethiazide and 80 mg nadolol combined with 5 mg bendroflumethiazide in bottles of 100.

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IN STATE

November 14-15

Clinical Teaching and Evaluation of Clinical Performance

Place: Chapel Hill

Credit: 12 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

November 20

Endocrinology for the Lifetime of the Female

Place: Sanford

Credit: 2 hours Category I AMA

Info: Robert S. Cline, M.D., Central Carolina Hospital, Sanford 27330. 919/774-6518

December 5-7

Fourth Comprehensive Symposium on Breast Disease

Place: Winston-Salem

Credit: 16 hours Category I AMA

Fee: \$350.00

Info: Center for Medical Ultrasound, Bowman Gray, Winston-Salem 27103. 919/748-4505

December 5-7

Microcomputers in Medical Education

Place: Chapel Hill

Credit: 18 hours Category I AMA, NCMS

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

December 7

UNC Ophthalmology Resident's Day

Place: Chapel Hill

Info: Baird S. Grimson, M.D., 617 Clinical Sciences Building 229H, UNC, Chapel Hill 27514. 919/966-5296

December 12

Controversies in Transplantation

Place: Chapel Hill

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

December 18

New Uses of Calcium Channel Blockers

Place: Sanford

Info: R. S. Cline, M.D., Central Carolina Hospital, 1135 Carthage Street, Sanford 27330. 919/774-6518

January 10-11, 1986

Advanced Cardiac Life Support

Place: Chapel Hill

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

January 30, 1986

Controversies in Transplantation

Place: Chapel Hill

Credit: 7 hours Category I AMA

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

OUT OF STATE

December 5

A Seminar on Legal Medicine

Place: Johnson City, TN

Credit: 7.25 hours Category I AMA, 7 hours AAFP

Fee: \$75

Info: Sue Hutchinson, Box 19660A, Quillen-Dishner College of Medicine, Johnson City, TN 37614. 615/928-6426, ext. 204

January 24-26

Winter Conference on Geriatrics

Place: Hot Springs, VA

Info: Mary Anna Hendley, NC Academy of Family Physicians, Box 20146, Raleigh 27619. 919/781-6467

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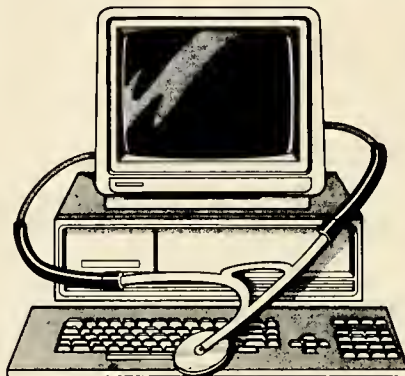


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Letters to the Editor

What To Do About Tobacco?

To the Editor:

I congratulate Dr. Moffett and Dr. Stead on their excellent Letter and Comment regarding tobacco in the September issue of the NCMJ (46:493). Physicians finally have stopped allowing the pretense that the link between cigarette smoking and disease is doubtful. The proof of the association is overwhelming.

Dr. Moffett's suggestions to the tobacco companies would be wonderful — if the changes were likely. But as lawyers remark: "Tobacco companies are not eleemosynary institutions." Industries seldom act in the public interest when such actions oppose their own economic interests.

There is a simple way to decrease our dependence on tobacco. Provide such high price supports for cotton, corn, vegetables, fruits, and other valuable crops that any efficient farmer can make a good living by planting them. Discontinue allotments and price supports for tobacco. Prohibit public billboard advertisements for tobacco. Increase the tax on tobacco products yearly until consumption

falls significantly, but do not make the tax so high that people begin to bootleg tobacco.

An extra advantage of this course of action would be to lessen the glaring governmental inconsistency which makes marijuana illegal and growing it a crime, while tobacco receives price supports and beer advertisements rule the TV screens. We cannot teach our youth to respect prohibitions that seem arbitrary and illogical compared with the incentives and freedoms given rather similar products.

Of course, my suggestions have little chance of being accepted in the next few years. In an overpopulated society, such as the USA, many people have few alternative ways of making a living. The leaders and people in favorable positions become afraid of proposed changes which might jeopardize their economic security. In North Carolina today, a politician who ran on the above platform regarding tobacco would be lucky to receive 5% of the votes. Nevertheless, the preceding suggestions (or something similar) eventually are almost sure to be adopted. Tobacco, once a mighty King, will become a weed in the farmer's garden.

Albert D. Warshauer, M.D.
1608 East Fifth Street
Greenville 27834

More on Coccydynia

To the Editor:

Another cause of coccydynia was recently reported by E. A. Mortimer, M.D.: two teenage girls developed coccyx pain when slouching in hard classroom seats while wearing tight blue jeans (Pediatrics 1985;76:138). One of the patients was concerned enough to seek orthopedic evaluation, but Dr. Mortimer recognized that the stiff reinforced jean seams caused coccyx trauma.

Based on this experience, Dr. Mortimer has an interesting comment about our Case 3, the young man on the motorcycle who suffered from tailbone pain (NCMJ 1985;46:209-12):

"I notice that the guy sitting on the motorcycle and holding a beer (Case 3) is wearing blue jeans: in his instance the etiology may be multi-factorial. It would then have to be called the Harley-Davidson-Jordache Syndrome."

Linda Frazier, M.D.

Division of General Internal Medicine
Duke University Medical Center
Durham 27710

Duke's Family Medicine

To the Editor:

I read with interest Dr. Robert Sullivan's review of the Family Medicine program at Duke (NCMJ 1985;46:329-31), Dr. Harvey Estes, Jr.'s Family Medicine at Duke: A follow up (NCMJ 1985;46:443-4) and George T. Wolff's and William A. Hensel's letters to the editor about the same

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subject (NCMJ 1985;46:493-5). They outlined many powerful currents that have affected this watershed event. I should like to suggest another angle that I think is both supplementary and complementary of the ideas presented by these writers.

Much of the struggle that Family Medicine departments and Family Medicine practitioners face in the internecine warfare of the tertiary medical center revolves around our own failure to earn our academic spurs. We can easily demonstrate the family physician's superiority at delivering medical care, and this delivery includes the efficient and effective utilization of the skills and talents of our subspecialist colleagues. We may successfully rest our future existence on this strength, and as this strength develops, it will enhance our relationship with our subspecialist colleagues. But, we will not successfully stand toe to toe with them in academe until we do research on disease processes that is better than theirs.

Intellectual strength belongs to those who break new ground.

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We are much more able to analyze in depth as opposed to broad statistical guesswork.

Secondly, such diseases as the sexually transmitted diseases should be almost the exclusive province of the family physician. The internist and infectious disease specialist has to move out of his usual age group to deal with these diseases. Syphilis is obviously no longer the province of the dermatologist. The urologist may know a bit about prostatitis, but is often unfamiliar with the cervix. The gynecologist knows a great deal about the cervix, but almost nothing about the prostate. The pediatrician begins to blush when his patients reach this age.

And most importantly, family physicians should be least guilty of all physicians of thinking in "pigeon holes." We should understand the interrelationships between the psychopharmacology of depression and the pharmacotherapeutics of hypertension, for example. The internist is so busy treating the high blood pressure that he has little interest in depression, and the psychiatrist is so busy with the depression that he has little interest in hypertension. We see both!

Family physicians should be prepared to undertake these explorations and to break new ground.

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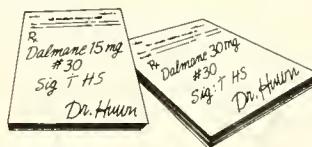
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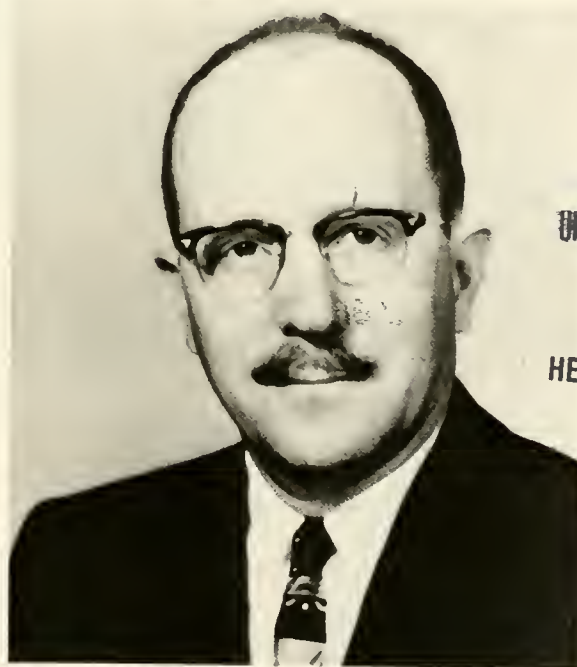
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for doctors and their patients

volume 46, no. 12, December 1985

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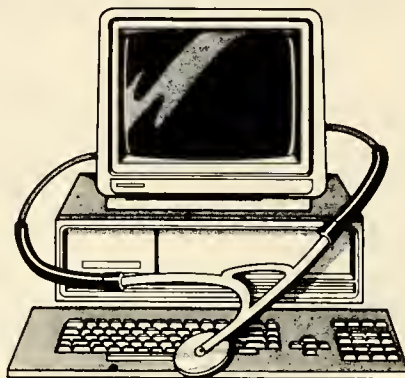
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On Dating, Marriage and Other Strange Relationships: The Future of Singular Hospitals

Harry A. Nurkin, Ph.D.

● *The dating game turns serious when the parties are hospitals and the product is health care.*

IN the world of business, corporate marriages are a familiar phenomenon. Often industrial mergers occur for purposes of diversification of product line, improved market penetration, economies of scale, strength and/or survival. While some industrial mergers are characterized as "unfriendly takeovers," for the most part the joining of two businesses or the merger of smaller businesses into larger corporate structures is considered to be routine and often healthy. One also sees marriages occur in other stable institutions and enterprises in our society. For example, institutions of higher learning join together for economic reasons as well as for more effective provision of the process of learning and the development of new knowledge. Churches and religious orders marry for the purpose of creating stronger congregations in order to carry out more effectively the mission of the particular denomination or church. Human beings marry for a variety of purposes, but such unions are generally based on a mutual desire to live, to work and to love together so that the parties of the union benefit far greater than they would have as separate individuals.

But when hospitals consider marrying, or other types of symbiotic relationships, unusual emotions erupt. Perhaps such mergers, marriages and other strange relationships involving hospitals engender emotion and lengthy discussion because such activity is a relatively new phenomenon in the hospital business.

Hospitals have been created for social and scientific purposes in over 7,000 locations in the United States. Hospitals are the most unique of modern enterprises according to management theorist Peter Drucker. They provide services that most recipients would prefer not to need. With the exception of normal births, most activities carried on in hospitals place the recipients of care in an atypical and unnatural environment where their bodies, internal chemistries, organs, and personality are examined, probed, punctured, and excised, in an attempt to resolve and/or cure afflictions that cause great anxiety and fear. In addition, hospitals are unique enterprises because of the myriad of formal and informal relationships brought to bear at the point of service. Physicians, with the exception of teaching physicians and hospital-based specialists, are pri-

vate entrepreneurs who practice voluntarily at hospitals. In this capacity, physicians interface with a potpourri of workers in health professional and support capacities to carry out the directions of the physician in order to diagnose, examine and provide therapeutic modalities for the care and treatment of patients.

Hospitals are also the prime example of a service industry. Generally the products of hospital activity are human-to-human services as compared with manufacturing or sales of products in the typical industrial setting. Most patients leave the hospital experience without tangible evidence of the experience, other than a general feeling of well being and elimination of anxiety and fear related to disease and injury. Unlike institutions of higher education, diplomas are not awarded. Unlike sales companies, no product can be viewed, used or worn by the purchaser of the hospital service.

Although hospitals are unique enterprises, communities regard them not only as necessities, but also as symbols of pride. Yet there exists in the midst of the pride in community hospitals an identifiable love-hate relationship. Generally, community citizens are prideful about the resources and technology and buildings called hospitals, yet the emotions of fear and anxiety and the potential for death also are apparent in the identification with hospitals.

In recent years, hospitals have also become the subject of much discussion related to the cost of care. Headlines proclaim that health care cost, of which a sizable proportion relates to hospital cost, has risen at an inflationary rate in excess of 18% annually, to the extent that almost 12% of the gross national product of our country can be related to expenditures for keeping our populous healthy. Of course such dramatic increases in the cost of health care create additional anxiety on the part of citizens in communities throughout our country, as well as business leaders who buy insurance for employees, tax payers who sponsor health care through taxation, insurance companies who provide various types of health care insurance, and others who are generally concerned about the rapid increase in health care cost.

In addition to such broad and varied emotional responses to hospitals as necessary but troubling enterprises, a broader social view of hospitals and health care in our country has been difficult to define. Because of the increasing cost to provide care through hospitals, we have wrestled with how

From The Charlotte-Mecklenburg Hospital Authority, Box 32861, Charlotte 28232.

this societal need should be balanced against other needs in light of available financial resources. Generally, Americans accept a social philosophy that supports the "highest possible quality" and "unlimited access" but also believe that such quality and access be provided at reasonable costs.

In a strained economy individual emotional responses to hospitals and the health care provided therein cause us to examine our collective social and philosophical conscience regarding whether the traditional system of hospitals should continue or whether new corporate formats should be created to provide necessary services at the highest possible quality with unlimited access, but at a controlled cost. These are difficult and often unanswerable dilemmas that we face.

Those who serve as members of Boards of Trustees of hospitals and managers of such facilities currently face a troubled environment. Uniformly, such persons are buffeted with complaints about the high cost of care provided by hospitals. Simultaneously, communities desire to have the most modern, up-to-date technology and facilities and the most skilled health professional and support personnel available. No citizen wants to believe that when he needs hospital care there will be inadequate physical facilities, outdated diagnostic and therapeutic equipment or too few health professional and support personnel. As the science and art of medicine progress, physicians desire to have the most modern and effective diagnostic and therapeutic tools available to assist in the care of the physician's patient in the laboratory or clinical environment known as a hospital. Physicians are also being buffeted by complaints and concerns on the part of business and industry and individual patients regarding the high cost of health care and the apparent inability of the health care system to work efficiently and effectively.

Our desire for super-specialization has developed to the extent that not every hospital is capable of dealing with all diseases and injuries. In earlier times hospitals provided all types of care and all types of equipment necessary for the physician to practice his trade. Today, in many communities a broad range of specialty facilities exists in addition to general facilities that can care for all maladies. Patients and physicians are forced to make decisions regarding the appropriate hospital to use depending on the disease or injury afflicting the patient. The relationships among the hospitals, patients, physicians, trustees, providers, insurers, administrators and other health professionals are indeed strained because of these compelling pressures of societal need, quality, access, competition and cost.

The most pressing issue facing the family of health care relationships today is the issue of cost. If, indeed, appropriate health care is a basic human right in America, how much can we afford to spend on this right as opposed to other human necessities and societal needs?

One of the ways to address the dilemma we all face is to determine whether more efficient, alternative delivery systems can replace what we have known to be the hospital system in our country. Alternative delivery systems can take the forms of mergers, partnerships and other intimate relationships among and between hospitals. In the decade of the 90s, we will see a change in the corporate structure of

hospitals throughout the State of North Carolina as well as other states in our country. Because most hospitals have operated as singular corporate entities, little in the way of economies of scale to contain costs has been available. In essence, hospitals have been as self centered and jealous of their singular enterprises as have been communities.

Until the burden of regulated payment systems and the advent of for-profit multiple hospital systems emerged in the decade of the 70s, singular hospital units believed they could survive financially and provide all elements needed by physicians and patients on a continuing basis. The decade of the 90s will witness a proliferation of new corporate designs as hospitals discover that "going it alone" does not work, and they begin to maneuver for secure positions in a highly competitive marketplace filled with increased risks and continuing complaints about efficiency, effectiveness, and the high cost of care.

Multiple hospital systems are already growing rapidly. Centrally managed chains of health delivery facilities now provide services to patients in over 12,000 facilities. This number combines hospitals, ambulatory centers, nursing homes, rest homes and other institutional sites for health care. It has been predicted that by 1990 investor-owned hospital chains will constitute 19% of our nation's hospitals and 23% by 1995, up from 14% in 1982. Singular, not-for-profit hospitals, once 100% of the market, will fall to less than 50% by 1995. It is estimated that over 40% of non-governmental hospitals will be owned, leased or controlled by multi-hospital systems by 1995, an increase of one-third over 1982. Much of the growth in multi-hospital systems will be generated by investor-owned or for-profit hospital chains, but not-for-profit systems will merge, marry or live together strictly for survival purposes by the decade of the 90s.

Mergers, marriages and other strange relationships will be based on the need of singular hospital units to protect or expand their market areas to achieve economies of scale by spreading the high cost of personnel and technology in order to survive in the next decade.

The reasons are easy to understand. In addition to economies of scale, singular hospitals that merge into larger corporate entities will also have greater access to capital, increased reimbursement from cost-based payors, reduced regulatory constraints, and to a lesser degree limited liability for certain operations within the hospital organization. In addition, hospitals in multi-hospital systems will begin to enter non-traditional business ventures as a way to offset the high cost of health care and limited reimbursement from regulated governmental agencies and commercial insurance companies.

Similar to human bonding through marriage, such mergers, marriages and other affiliations will not occur without trauma. For centuries hospitals have been singularly owned and operated, and the community pride and spirit of those singular units will be forced to give way to the good of a greater need and to provide high quality and access at reasonable costs. There are examples in the State of North Carolina of multi-hospital system marriages. In Charlotte, the Charlotte-Mecklenburg Hospital Authority was created by an act of the legislature in 1943 to allow for economies of scale, elimination of duplication and protection against

some of the forces that now impinge against hospitals. This forward-thinking legislation, created 42 years ago, now supports a system that includes a large teaching hospital of 777 beds, a rehabilitation hospital of 88 beds, a primary and secondary hospital of 130 beds, a skilled and intermediate nursing home facility of 282 beds, a rest home of 205 beds, several primary care facilities, emergency and ambulatory care facilities and an institute for health promotion. In Raleigh the Wake County Hospital System is made up of five institutions bonded together by economic, social and clinical needs. Sun Health, a multi-hospital ownership and management firm based in Charlotte, owns or manages nearly 50 institutions throughout the southeastern United States. This company also provides shared services for a number of other institutions in North Carolina and South Carolina through contractual relationships. In addition to these examples there are nursing home chains, rest home chains and investor-owned for-profit hospital systems operating multiple units in our State.

What does this portend for the future? For smaller hospitals in rural or suburban areas, the current economic facts of life are not promising for long-term survival. Access to capital, patient referral patterns, and the recruitment of primary and specialty physicians continue to be problems for smaller communities in the State of North Carolina. Without these essentials, smaller hospitals in smaller communities in our state will find it increasingly difficult to stay abreast of technology and provide to physicians and their patients the type of technology and care required to deal with current diseases and injuries at reasonable cost.

The dating game has already begun. Many larger hospitals in urban areas are courting smaller institutions, offering large sums of money to purchase or manage their facilities. Health Maintenance Organizations (HMOs) have entered North Carolina because market surveys show that our state is fertile for the introduction of this additional way of providing physician and hospital care at lower costs. In other states HMOs own their own hospitals and ambulatory facilities.

Obviously the marriages, mergers, dating relationships and other informal interactions are attractive to those who pay for care. Employers and insurance companies encourage the amalgamation of entities such as hospitals in order to reduce duplication and, therefore, the cost of health care.

The problems are also obvious. No singular hospital with the pride of history and performance wishes to give up its identity to a larger group or to be taken over or otherwise usurped by a larger corporation. Physicians have reasonable and understandable anxieties regarding such activities because there is no guarantee that the essential elements of pride and quality will be maintained as hospital mergers, marriages and other relationships continue in the State of North Carolina.

Nationally, the examples of merged hospital facilities are many and successful. In the State of North Carolina there are examples in Charlotte, Raleigh and other cities where facilities have merged into larger groupings for the benefit of the population, the practicing physician and cost. The forms of such relationships are many and varied. The growth has been so rapid that discussions now center around antitrust implications of controlling the market

place.

Physicians are also concerned that larger corporations will be less willing to offer an ear to the physician or to invite the physician into the corporate board room for major policy decision making.

In our rapidly changing environment, each hospital must evaluate its strengths and weaknesses, its economic environment now and in the future in order to decide the most appropriate avenue of independence or merger for security. Competition has spurred the desire to reach new markets but also to share risks while obtaining capital and diversified revenue sources through mergers and other acquisitional corporate structures.

As admissions to hospitals have declined over the past five years the ability of singular hospital units to survive has diminished. As ambulatory services continue to take a larger chunk of the traditional hospital service market, singular hospital units will face additional survival questions.

As with industrial mergers and other types of organizational marriages, the basic questions will be: Can physicians and their patients be better served by the traditional singular hospital unit or can economies of scale and access to capital and new technology improve patient care through merging or joining multiple hospital systems? Will the benefit be to physicians, patients and those who pay the cost of health care?

There are no ready answers to the questions. One must approach marriage or merger with caution so as not to damage irreparably the good and important elements of our health care system.

Hospitals besieged by new competitors and pressured to cut costs are entering a new and unfamiliar environment. As admissions decline and the government's new prospective payment system is making itself felt, hospitals throughout our state are feeling the pinch. Nonprofit hospitals face competition from newer for-profit providers of health care. There are advantages and disadvantages for hospitals to consider, such as downsizing, diversification, joint ventures, as well as mergers and other types of corporate affiliations. Those singular hospitals that do not wish to merge with larger systems may attempt a joint venture with other singular hospitals in an effort to find the benefits of marriage without actually consummating the marriage. Merger with other hospitals or larger corporations is often seen as the last resort for singular hospitals. Yet in many cases it may be the best strategy. Hospitals that need large amounts of capital, recruitment of physicians, the purchase of technology and the maintenance or replacement of older buildings may find that merger with larger hospitals or multi-hospital systems is the only answer to survival.

The failure or closure of some smaller hospitals in the State of North Carolina is probably inevitable. This year at least three facilities have either closed or come near to failure financially. It is not in the public interest to continue to have singular hospitals operating in weakened financial conditions fighting to survive in our communities. The strategies for survival are available, and many singular institutions will respond to threats to their survival by marrying, merging or establishing relationships with other hospitals.

A Duke Administrator Surveys the Current Scene

Duncan Yaggy, Ph.D

DR. Nurkin has put his finger on a problem that worries many communities in North Carolina, for the survival of rural, independent hospitals is threatened on four sides at once:

- Pressures to limit the growth in expenditures for health care are reducing hospitalization. Hospital utilization has dropped sharply the last three years, and it will continue dropping for several years more.

- Public and physician perception that large urban hospitals can provide more comprehensive services is taking patients out of rural hospitals. Rapid development in the Piedmont, along the coast, and in other parts of the state will bring more residents of rural areas to the cities and accelerate the trend.

- It is hard to raise the capital required to renovate hospitals and keep them up to date. Many of our rural hospitals were built during the 1940s and 1950s and require reconstruction or extensive renovation simply to operate efficiently. Declining occupancies make it seem essential

that they renovate, but they will also make it more difficult to find the funds.

- The growth of health maintenance organizations, preferred provider organizations, and other prepaid plan arrangements will bring into the health care market buyers who will use the competition between hospitals with empty beds to compel substantial discounts.

Whether to hold on to their patients, protect their revenues, gain access to the capital they require, or share in the economies of scale that come with participation in a larger system, independent hospitals are entering all manner of new relationships. Some are joining multi-hospital systems, while others are joining with their physicians to create prepaid plans, and still others are creating ties with ambulatory care providers, nursing homes, and home health agencies to create health care service organizations providing a full range of services.

As Dr. Nurkin points out, the difficulty of developing networking arrangements is formidable, and hospital boards accustomed to concern with acute inpatient services and to independence may find the transition awkward and difficult. But for many hospitals, large and especially small, there is no choice.

From Duke University Medical Center, Durham 27710.

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*Cardizem is indicated in the treatment of angina pectoris due to coronary artery spasm and in the management of chronic stable angina (classic effort-associated angina) in patients who cannot tolerate therapy with beta-blockers and/or nitrates or who remain symptomatic despite adequate doses of these agents.

References:

1. Strauss WE, McIntyre KM, Parisi AF, et al: Safety and efficacy of diltiazem hydrochloride for the treatment of chronic stable angina pectoris: Report of a cooperative clinical trial. *Am J Cardiol* 49:560-566, 1982.
2. Pool PE, Seagren SC, Bonanno JA, et al: The treatment of exercise-inducible chronic stable angina with diltiazem: Effect on treadmill exercise. *Chest* 78 (July suppl):234-238, 1980.

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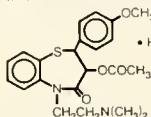
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PROFESSIONAL USE INFORMATION



DESCRIPTION

CARDIZEM (diltiazem hydrochloride) is a calcium ion influx inhibitor (slow channel blocker or calcium antagonist). Chemically, diltiazem hydrochloride is 1,5-Benzothiazepin-4(5H)-one, 3-(acetyloxy)-5-[2-(dimethylamino)ethyl]-2,3-dihydro-2-(4-methoxyphenyl)-, monohydrochloride, (+)-cis-. The chemical structure is:



Diltiazem hydrochloride is a white to off-white crystalline powder with a bitter taste. It is soluble in water, methanol, and chloroform. It has a molecular weight of 450.98. Each tablet of CARDIZEM contains either 30 mg or 60 mg diltiazem hydrochloride for oral administration.

CLINICAL PHARMACOLOGY

The therapeutic benefits achieved with CARDIZEM are believed to be related to its ability to inhibit the influx of calcium ions during membrane depolarization of cardiac and vascular smooth muscle.

Mechanisms of Action. Although precise mechanisms of its antianginal actions are still being delineated, CARDIZEM is believed to act in the following ways:

1. **Angina Due to Coronary Artery Spasm:** CARDIZEM has been shown to be a potent dilator of coronary arteries both epicardial and subendocardial. Spontaneous and ergonovine-induced coronary artery spasm are inhibited by CARDIZEM.
2. **Exertional Angina:** CARDIZEM has been shown to produce increases in exercise tolerance, probably due to its ability to reduce myocardial oxygen demand. This is accomplished via reductions in heart rate and systemic blood pressure at submaximal and maximal exercise work loads.

In animal models, diltiazem interferes with the slow inward (depolarizing) current in excitable tissue. It causes excitation-contraction uncoupling in various myocardial tissues without changes in the configuration of the action potential. Diltiazem produces relaxation of coronary vascular smooth muscle and dilation of both large and small coronary arteries at drug levels which cause little or no negative inotropic effect. The resultant increases in coronary blood flow (epicardial and subendocardial) occur in ischemic and nonischemic models and are accompanied by dose-dependent decreases in systemic blood pressure and decreases in peripheral resistance.

Hemodynamic and Electrophysiologic Effects. Like other calcium antagonists, diltiazem decreases sinoatrial and atrioventricular conduction in isolated tissues and has a negative inotropic effect in isolated preparations. In the intact animal, prolongation of the AH interval can be seen at higher doses.

In man, diltiazem prevents spontaneous and ergonovine-provoked coronary artery spasm. It causes a decrease in peripheral vascular resistance and a modest fall in blood pressure and, in exercise tolerance studies in patients with ischemic heart disease, reduces the heart rate-blood pressure product for any given work load. Studies to date, primarily in patients with good ventricular function, have not revealed evidence of a negative inotropic effect; cardiac output, ejection fraction, and left ventricular and diastolic pressure have not been affected. There are as yet few data on the interaction of diltiazem and beta-blockers. Resting heart rate is usually unchanged or slightly reduced by diltiazem.

Intravenous diltiazem in doses of 20 mg prolongs AH conduction time and AV node functional and effective refractory periods approximately 20%. In a study involving single oral doses of 300 mg of CARDIZEM in six normal volunteers, the average maximum PR prolongation was 14% with no instances of greater than first-degree AV block. Diltiazem-associated prolongation of the AH interval is not more pronounced in patients with first-degree heart block. In patients with sick sinus syndrome, diltiazem significantly prolongs sinus cycle length up to 50% in some cases.

Chronic oral administration of CARDIZEM in doses of up to 240 mg/day has resulted in small increases in PR interval, but has not usually produced abnormal prolongation. There were, however, three instances of second-degree AV block and one instance of third-degree AV block in a group of 959 chronically treated patients.

Pharmacokinetics and Metabolism. Diltiazem is absorbed from the tablet formulation to about 80% of a reference capsule and is subject to an extensive first-pass effect, giving an absolute bioavailability (compared to intravenous dosing) of about 40%. CARDIZEM undergoes extensive hepatic metabolism in which 2% to 4% of the unchanged drug appears in the urine. In vitro binding studies show CARDIZEM is 70% to 80% bound to plasma proteins. Competitive ligand binding studies have also shown CARDIZEM binding is not altered by therapeutic concentrations of diphenhydramine, phenylbutazone, propranolol, salicylic acid, or warfarin. Single oral doses of 30 to 120 mg of CARDIZEM result in detectable plasma levels within 30 to 60 minutes and peak plasma levels two to three hours after drug administration. The plasma elimination half-life following single or multiple drug administration is approximately 3.5 hours. Desacetyl diltiazem is also present in the plasma at levels of 10% to 20% of the parent drug and is 25% to 50% as potent a coronary vasodilator as diltiazem. Therapeutic blood levels of CARDIZEM appear to be in the range of 50 to 200 ng/ml. There is a departure from dose-linearity when single doses above 60 mg are given; a 120-mg dose gave blood levels three times that of the 60-mg dose. There is no information about the effect of renal or hepatic impairment on excretion or metabolism of diltiazem.

INDICATIONS AND USAGE

1. **Angina Pectoris Due to Coronary Artery Spasm.** CARDIZEM

is indicated in the treatment of angina pectoris due to coronary artery spasm. CARDIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment elevation occurring during attacks).

2. **Chronic Stable Angina (Classic Effort-Associated Angina).** CARDIZEM is indicated in the management of chronic stable angina. CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance. There are no controlled studies of the effectiveness of the concomitant use of diltiazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities.

CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

WARNINGS

1. **Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.
2. **Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.
3. **Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.
4. **Acute Hepatic Injury.** In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes. (See PRECAUTIONS AND ADVERSE REACTIONS.)

PRECAUTIONS

General. CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.

Drug Interaction. Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

Carcinogenesis, Mutagenesis, Impairment of Fertility. A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in *in vitro* bacterial tests. No intrinsic effect on fertility was observed in rats.

Pregnancy. Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM in pregnant women only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are: edema (2.4%),

headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%), AV block (1.1%). In addition, the following events were reported infrequently (less than 1%) with the order of presentation corresponding to the relative frequency of occurrence.

Cardiovascular:	Flushing, arrhythmia, hypotension, bradycardia, palpitations, congestive heart failure, syncope.
Nervous System:	Paresthesia, nervousness, somnolence, tremor, insomnia, hallucinations, and amnesia.
Gastrointestinal:	Constipation, dyspepsia, diarrhea, vomiting, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH.
Dermatologic:	Pruritus, petechiae, urticaria, photosensitivity.
Other:	Polyuria, nocturia.

The following additional experiences have been noted:

A patient with Prinzmetal's angina experiencing episodes of vasospastic angina developed periods of transient asymptomatic asystole approximately five hours after receiving a single 60-mg dose of CARDIZEM.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: erythema multiforme, leukopenia, and extreme elevations of alkaline phosphatase, SGOT, SGPT, LDH, and CPK. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

OVERDOSAGE OR EXAGGERATED RESPONSE

Overdosage experience with oral diltiazem has been limited. Single oral doses of 300 mg of CARDIZEM have been well tolerated by healthy volunteers. In the event of overdosage or exaggerated response, appropriate supportive measures should be employed in addition to gastric lavage. The following measures may be considered:

Bradycardia	Administer atropine (0.60 to 1.0 mg). If there is no response to vagal blockade, administer isoproterenol cautiously.
High-Degree AV Block	Treat as for bradycardia above. Fixed high-degree AV block should be treated with cardiac pacing.
Cardiac Failure	Administer inotropic agents (isoproterenol, dopamine, or dobutamine) and diuretics.
Hypotension	Vasopressors (eg, dopamine or levaterenol bitartrate).

Actual treatment and dosage should depend on the severity of the clinical situation and the judgment and experience of the treating physician.

The oral LD₅₀'s in mice and rats range from 415 to 740 mg/kg and from 560 to 810 mg/kg, respectively. The intravenous LD₅₀'s in these species were 60 and 38 mg/kg, respectively. The oral LD₅₀ in dogs is considered to be in excess of 50 mg/kg, while lethality was seen in monkeys at 360 mg/kg. The toxic dose in man is not known, but blood levels in excess of 800 ng/ml have not been associated with toxicity.

DOSEAGE AND ADMINISTRATION

Exertional Angina Pectoris Due to Atherosclerotic Coronary Artery Disease or Angina Pectoris at Rest Due to Coronary Artery Spasm. Dosage must be adjusted to each patient's needs. Starting with 30 mg four times daily, before meals and at bedtime, dosage should be increased gradually (given in divided doses three or four times daily) at one- to two-day intervals until optimum response is obtained. Although individual patients may respond to any dosage level, the average optimum dosage range appears to be 180 to 240 mg/day. There are no available data concerning dosage requirements in patients with impaired renal or hepatic function. If the drug must be used in such patients, titration should be carried out with particular caution.

Concomitant Use With Other Antianginal Agents:

1. **Sublingual NTG** may be taken as required to abort acute anginal attacks during CARDIZEM therapy.
2. **Prophylactic Nitrate Therapy**—CARDIZEM may be safely coadministered with short- and long-acting nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.
3. **Beta-blockers.** (See WARNINGS AND PRECAUTIONS.)

HOW SUPPLIED

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Do Not Resuscitate Orders in Nursing Homes: The Need for Physicians to Communicate and to Document

Paul Beck, M.D.

- *Physicians who care for patients in nursing homes should read this article on DNRs, which was written by the Chairman of NCMS' Committee on Aging.*

DURING the past year, the Committee on Aging of the North Carolina Medical Society was asked to consider problems encountered regarding the interpretation of the North Carolina Right to Natural Death Act as it applied to Do Not Resuscitate (DNR) orders in North Carolina nursing homes. As physicians have already learned in the hospital setting, there are differences of opinion about the interpretation of this act by nursing home physicians, administrators, and agencies that review the nursing homes. This issue is complex and its application in the nursing home setting is further complicated by the frequent lack of documentation in the nursing home patient records about "do not resuscitate" requests that have been made by patients and their families. In nursing homes in particular, physicians often fail to document their discussions with families about their desired goals and outcomes for the patient.

Physicians may make notable contributions to the well-being of nursing home patients, their families, and their caregivers (the nursing home staff) by considerate development of the patient care plan at the time of admission to the nursing home. However, appropriate solutions to the "do not resuscitate" problem require careful consideration by physicians of ethical issues regarding palliative and supportive care. These include 1) ways to ascertain the wishes of the patient and family with regard to treatment goals and outcomes, including their wishes about life support measures in the event of a life-threatening event; 2) legal mechanisms for documenting the patient's wishes and care plans; 3) ways to incorporate these wishes into a **comprehensive** care plan for the patient before, during and between nursing home admissions. Finally, none of these considerations will bear fruit unless the physician continues to be involved in the care of the patient. This will be facilitated when patients and physicians develop mechanisms for insuring that physicians are adequately reimbursed for the time and services that they render to their nursing home patients.

Ways to Ascertain the Patient's Wishes

The salient feature of top-quality decision making in health care is collaboration between a qualified physician and a competent patient.¹ The physician makes every attempt to insure that the patient knows about the treatment options that might be advantageous (including no treatment); the patient informs the physician about his or her own values or preferences. This process of shared communication and experiences will usually lead to an agreement about the best course to pursue. When agreement does not occur, then cultural and legal values in our society require that the patient bear both the responsibility and the authority for his or her own choice.

Obviously, some potential options are not available to either the physician or the patient. For example, the physician cannot legally or ethically be asked to administer a poison or a toxic drug to a patient or give transfusions to a patient who will not accept them. Similarly, patients may not be able to accept certain options because of inadequate finances, or transportation, or the unavailability of necessary resources in the area where the patient lives. Options should not be excluded, however, because of an unilateral assessment of the patient's wishes or quality of life.

It is essential that the physician strive to enhance the ability of the patient to make good decisions. Coercion and manipulation must be avoided by such maneuvers as unfair, biased presentation of the facts, trauma, threats of abandonment, or restrictions of the patient's ability to handle activities of daily living. Similarly, it is important that the patient receives essential emotional support, effective counseling, and adequate time to assess and to evaluate all relevant information. Physicians should attempt to encourage clarification of values and priorities and to minimize mind altering drugs or procedures. The patient's confidence and self-respect should be stimulated by having the patient make many minor decisions, mobilizing the support of significant family and friends, and clarifying the nature of the choices by encouraging the patient to meet others who have made similar choices. When patients are not able to make reasonable choices that reflect their own values (because of excessive weakness, depression, or altered

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state of consciousness), the attending physician must be responsible for recognizing this deficit and for implementing appropriate corrective steps. The ethical mandate is clear that the physician should assess the patient's capacity to enter into decision making and should assure that good choices are made on behalf of each patient who has inadequate judgment capabilities.

There are several alternate ways in which the patient may indicate to the physician his/her capacity for participating in decisions about medical care. First, the patient may be able to demonstrate an appreciation of the seriousness of the choice that he/she is making. A reasonable standard for the patient's decision is the same as a "prudent person in similar circumstances." This lay person standard is not the same as the "prevailing standard" of medical practice. Similarly, psychiatric assessment for substantial deficits in cognitive emotional functioning may be helpful, but not determinative, because even people with major psychoses may be able to make some decisions that are unaffected by their psychoses. Second, the patient may name his/her preferred surrogate and give that person instructions through a "durable power of attorney" (to be defined in the next section). When the patient is not able to make serious decisions about his/her own choices, the attending physician should identify a surrogate who can collaborate in the decision making on behalf of the patient. Finally, the patient may wish to turn over significant treatment choices to his/her physician. As long as the patient realizes the implications of these decisions and realizes that he/she could have made them, and as long as the physician is willing to accept this role, delegation of the final decisions to the physician is quite acceptable and should be documented.

As in all medical care, physicians are well advised to document carefully the content of the discussions with their patients and the processes utilized in making these decisions. Both ideally and practically, these decisions should be made before the patient is admitted to the nursing home.

Ways to Determine the Wishes of the Family

The prognosis of patients admitted to nursing homes is usually well known to their family caregivers long before the frail patient is admitted to a nursing home. Consequently, these family members often develop opinions about the relative merits of supportive versus curative care. As shown by Smallegan² and by Knight and Walker,³ the decision to admit a relative to a nursing home is generally made only after long deliberation and consideration by family members. Most of the patients admitted to nursing homes have required a great deal of help (usually by spouses, daughters and/or sons) long before the patients were admitted to the nursing home. In at least two-thirds of the ill elderly patients, the breaking point generally occurred when the level of care needed was high, particularly when supervision or care was needed 24 hours a day.

The major problems precipitating admission to nursing homes were confusion and an inability to walk well. At least 60% of the patients needed some assistance in five or more of the standard activities of daily living, particularly bathing. Eighty-eight percent of the patients had recognized the existence of problems for more than a year; more than half of them or their families had been worried about

these problems for a year or longer. Families and nursing home staff reported an average of just over four health problems for each person, with at least one of these problems having become more acute during the month preceding admission. Health problems that most often precipitated admission to skilled nursing facilities included fractures, strokes, cancer, pulmonary disease and pain. For intermediate care facilities the major precipitating problems were difficult behavior (25% of those admitted), confusion, incontinence, debility, and unwillingness to eat. Falls were also a frequent precipitating complaint. From the family's standpoint, about a third of the admissions occurred when the family felt that the new problems of caring for the patient required too much work. Exhaustion or death of the caregiver accounted for about 20% of the admissions.

Physicians are also aware of the decline of these patients before their admissions to nursing homes. As shown by Lewis, Cretin, and Kane,⁴ 54% of the patients admitted to a variety of California nursing homes over a two-year period were transferred frequently between hospitals and nursing homes. Physicians were obviously responsible for the patients during their care in hospital. In addition, the current prospective reimbursement mechanism for hospitalized Medicare and Medicaid patients (Diagnosis Related Groups — DRGs) fosters the tendency to send patients to nursing homes in order to promote early discharge from the hospital. Paradoxically, the DRG mechanism is likely to exacerbate the tendency to shuttle nursing home patients back to hospitals for relatively minor problems, provided that the interval between hospitalizations is sufficiently long. In any case, the physician is usually able to inquire of both the patient and family about their wishes for life support measures not only in the hospital, but also at the time that they plan for transfer to the nursing home.

Legal Mechanisms for Documenting the Patient's Wishes: Advance Directives

Making life or death decisions becomes measurably easier when the patient expresses his values and wishes. Both the patient's family and the physician or other health care givers feel much more comfortable making such a decision when the patient's wishes are known. In our culture, legal requirements mandate that the patient be presumed competent and able to make informed decisions. In these matters, competency or decision-making capacity can be defined in terms of an individual's capability to understand information relevant to the medical decision at hand and to reason about relevant alternatives against the background of stable personal values and life goals.

These decisions can be made before the fact as well as at the time of a critical event. An "advance directive" is an oral or written instruction prepared by an individual concerning his/her health care in the event of later loss of competence or decision-making capacity.⁵ All of these mechanisms require legal consultation and need to be filed and/or approved by a court. The North Carolina Right to Natural Death Act⁶ provides for patients to make legal documents, i.e., "living wills," in which the nature and type of life-supporting mechanisms to be limited or used can be specifically stated. This Right to Natural Death Act

is, by its own language, not limited to Living Wills. Thus, other written mechanisms can be considered. For the patient who wishes to insure that all resuscitative options be considered, it is possible to write a "Directive to Provide Maximum Care" statement which specifically requests the physician to undertake all reasonable mechanisms for providing life support in the event of cardio-respiratory failure.⁷

Another mechanism, "durable power of attorney," is embodied in Chapter 32A of the North Carolina General Statutes: Powers of Attorney.⁸ The durable power of attorney concept enables the surrogate designated by the patient to "do all acts necessary for maintaining the customary standard of living of the principal," including providing "medical, dental and surgical care, hospitalization and custodial care for the principal, spouse, and/or children." A durable power of attorney is superior to the usual power of attorney, since the latter usually lapses when the person granting it becomes incompetent. Thus, the usual power of attorney is of little legal merit in medical treatment decisions for incompetent patients. By contrast, the provisions of the durable power of attorney allow it to become effective or to remain in effect during incompetency. Also, the incompetency need not be determined in court if the document specifies another procedure.^{5, 6}

A less formal way of capturing the patient's wishes about long-term care is to request that the patient simply write a letter of "instructions to my physician" (E. A. Stead, Jr., M.D., personal communication). In this letter, the patient can express his or her wishes about ways in which he might wish to be cared for in the event of various outcomes based on the patient's current or anticipated medical problems. Obviously, it would behoove the physician to note the receipt of such a document in his own records and to include it in the medical record any time the patient is admitted or transferred to a new medical institution, including a nursing home.

Regardless of the form of these advance directives, it is important to recognize that the process of discussing these outcomes may be as important as the decisions and the outcomes. Open, frank discussions of various treatment/care options between the physician and the patient and family increase the likelihood that good decisions will be made and that good outcomes will be achieved. The best outcomes and decisions are those in which everyone feels mutually satisfied.

Incorporating Patient Wishes into Nursing Home Plans

Ideally, a physician who has enjoyed a professional relationship of substantial duration with an older patient should continue to provide care even after that patient enters a nursing home. According to Kapp:⁹

"Physicians who admit individuals to nursing homes should understand both their own legal and ethical responsibilities and those obligations of the nursing home to which the patient is admitted. Personal physicians, nursing home administrators, and medical directors, must work together to insure that their separate and mutual duties are being carried to the ultimate betterment of the resident. Where the nursing home already has a policy in effect regarding its expectations and requirements concerning

admitting physicians, the admitting physicians should be aware of the policy, scrupulously obey it, and offer to assist in amending portions that are unreasonable or otherwise ill-advised. The physician should also strive to exert influence to encourage his or her students and peers to act similarly regarding their own nursing home patients. Where the nursing home to which the physician sends patients has not yet adopted a policy in this area, the physician practicing in the community should help to design a policy that reflects his or her legitimate needs and concerns, while adequately protecting the rights of the residents."

Physicians with patients in nursing homes should also be aware that the nursing homes themselves are increasingly being advised to adopt policies and procedures that specify the mechanisms for decision making in their institutions. These include a description of the roles and responsibilities of the physician and mechanisms for reviewing these decisions.

"Overall, facility policies concerning medical decision making generally, and 'life and death' decision making in particular, should be clear, explicit, and consistently applied. While the professionals involved in the actual decision making process may understand the reasoning involved, many staff members will need special help in understanding why and how these decisions are made. Facility policy should be flexible enough to account for individual circumstances and staff should be given sufficient information to understand the differences. Direct care staff, in particular, will need careful training and continued support to carry out 'comfort measures only' or supportive care plans. Physician orders that include detailed components of a supportive care plan for the individual resident should be required by the facility's procedures. Under no circumstances should it be possible to infer that the resident for whom supportive care only is appropriate has been abandoned by the health care team or the facility."⁵

Obviously, both the patient and the family, as well as the physician will feel much more comfortable if the nursing home provides vigorous supportive care for the patient rather than simply orders for "do not resuscitate," "do not intubate," etc. The physician (and/or nursing home) should supply a list of specific measures, in the form of orders, that clearly delineates the kind of care measures that are needed by the patient and are always medically appropriate. As noted by Lynn¹⁰ these supportive orders should include consideration of symptom control, pain control (when necessary), mental function, gastrointestinal symptoms (including anorexia, dysphasia, nausea, vomiting, constipation, diarrhea), skin problems (such as decubitus ulcers, fistulas, sinuses), fever, weakness, respiratory symptoms. Also, the management of bereavement of the patient, family and staff should also be given consideration in these orders. If all of these orders are attended to, neither the patient nor the family should feel abandoned.

As an additional measure, both the attending physicians and the administrators of nursing homes should consider the establishment of advisory committees to prevent biased treatment regimens from being established by physicians, nurses, or administrators.⁵ Attempts should be made to involve the residents of the nursing home in general policy

issues whenever competent patients can be brought into such discussions. With regard to day-to-day decisions, these should probably be reviewed by a group of individuals who come from a broad-based perspective, both within the institution and from the community. Thus, lawyers, ministers, physicians, and other individuals with an interest in the broad prospectus of patient care should be available to help physicians and families review management decisions in which some conflict may arise.

Other Ethical Issues

Implementation of these policies will not be easy. Good treatment will require individualization of care plans. These care plans must meet the needs of the patient and family. However, individualization challenges (and sometimes negates) the equitable use of scarce resources such as nursing home personnel, services, and available dollars.

Good support measures for patients who are truly failing may mean only "decent minimum of care."¹⁰ However, this may be truly caring care in much the same way that Hospice provides care for the terminally ill in their own homes. It may be much more appropriate to substitute an LPN instead of an RN when personal care is needed rather than high technology. Nevertheless, the physicians and nursing home personnel must be careful not to economize for one patient at the expense of others. When it is determined that life is no longer meaningful for a given patient, it would be reasonable to withhold or restrict treatment to save funds. However, this would be ethical in the realm of patient care only so long as the health care professionals retain control of these funds and have alternate ways of spending the money. It would be unreasonable and unethical for the government to reclaim the money only to use it for non-health care purposes (C. K. Cassell, personal communication).

For physicians to continue to be involved with the care of their patients in nursing homes, it is important that they be appropriately reimbursed for the time and effort spent there. It is recognized that reimbursement from Medicare and Medicaid (the latter funds approximately 65% of all nursing home residents in North Carolina) is usually slow and sometimes contentious. Nevertheless, it is possible to bill Medicaid and Medicare for services rendered at intervals more frequent than once a month. To be eligible for reimbursement, the physician must document the problem(s) for which care is being given and use procedure codes that are readily recognized and accepted by Medicaid and Medicare reimbursement agents. Appendix A shows responses to questions I posed to EDS Federal regarding Medicaid reimbursement for physician services for nursing home care in May 1985. I believe that these answers will be very helpful to any physician who provides care for nursing home patients. In particular, I would stress that the physician (1) document (both in the medical record and in the bill to Medicaid/Medicare) the reason for the visit and (2) select a procedure code from the 903 series that would be appropriate for the nature of the problem and the amount of time spent with the patient.

Conclusion

Appropriate medical care for nursing home residents

remains a major medical, ethical, moral, and economic challenge for the practicing physician. I believe that caring physicians can provide important leadership for nursing homes and their administrators and staff, as well as comfort to patients and their families. This requires sagacious consideration of care needs and wise investment of time with these patients. Through some consolidated effort and planning, many important advances can be made in the care of these patients at little additional cost and relatively small expenditure of time by the physician. With a modest increase in the amount of time spent communicating effectively with patients and families particularly before events become critical, by encouraging the use of advance directives, and by documenting these efforts, physicians will be making important contributions to the health care of frail patients and their families.

Appendix A

Responses to questions directed to EDS Federal regarding Medicaid reimbursement for physicians services for nursing home care.

1. How are physicians reimbursed for nursing home care?

Medicaid will pay per visit per CPT code, using codes 90300-90370 found in the CPT code book. Physicians are reimbursed at 100% of the billed amount or the amount allowed for the particular CPT code on a fee schedule based on the doctor's specialty, whichever is less.

2. How often are physicians required to visit nursing home patients?

For Skilled Nursing Facility (SNF) Patients:

Medicaid patients must be initially certified by a physician at the time of admission, or if an individual applies for assistance while in an SNF, before the Medicaid Agency authorizes payment. Physician recertification must be made at 30, 60 and 90 days after admission and every 60 days thereafter.

The physician is required to visit and write a progress note at least every 30 days. He/She is also required to review and renew orders every 30 days. After the first 90 days the physician can request approval of an alternate visit schedule from DMA/Utilization Control Section. If the patient's condition does not require physician visits every 30 days and it is approved, the alternate schedule cannot exceed 60 days between visits.

Each Medicaid patient must be reviewed by the Utilization Review Committee every 30 days from the day of admission up to the first 90 days and every 90 days thereafter for as long as the patient remains at the skilled nursing level of care. Readmission to the same level of care after hospitalization would start the review process over again.

For Intermediate Care Facility (ICF) Patients:

Medicaid patients must be initially certified by a physician at the time of admission, or if an individual applies for assistance while in an ICF, before the Medicaid Agency authorizes payment. Physician recertification must be made at 12, 18 and 24 months after admission and annually thereafter.

The Intermediate Care Facility's Utilization Review Plan must provide for a review of each recipient's need for continued stay at the ICF level of care at least every six months (180 days), for as long as the patient remains at the ICF level of care.

3. How ill must a patient be in order to qualify for the nursing home care?

Skilled Nursing Care

Skilled nursing services, as ordered by a physician, must be required and provided on a 24 hour basis, seven days a week.

If a patient's condition is such that it requires observation and assessment by technical or other professional personnel (licensed medical personnel such as a licensed practical nurse, physician assistant, etc.) to identify or evaluate the patient's need for possible modification of his/her treatment plan and the initiation of additional medical procedures until his/her condition is stabilized, the service is at the skilled level of care. These services must be documented by physicians' orders, progress notes, nurses' notes and/or therapists' notes.

In cases where the use of technical or professional personnel (licensed medical personnel) is necessary to teach a patient self-maintenance, such teaching services would constitute skilled services. Training programs of longer than two months will be considered appropriate for the intermediate level unless exceptional circumstances are present and fully documented by a physician.

The development, management and evaluation of a patient care plan based on physicians' orders constitutes skilled services when the patient's serious, unstable and/or deteriorating physical or mental condition (such as development management and evaluation) necessitates involvement of technical or professional personnel (licensed medical personnel) to meet his needs, promote his recovery and actuate his medical safety. Complications and special services involved must be fully documented by the physician's orders, progress notes, nurses' notes and/or therapists' notes.

"Total care," which is care given primarily by aides to assist in the activities of daily living, does not constitute skilled nursing care.

Intermediate Level of Care Criteria

The determination of the differences between skilled and intermediate levels of care is based upon the patient's condition, along with the complexity and range of medical and health related services required by the patient on a daily basis. The provision of room, food, laundry and supervision of activities of daily living do not, in any way, qualify as intermediate care.

Intermediate nursing care includes care for patients with long term illnesses or disabilities which are relatively stable and/or care for patients nearing recovery and discharge, who continue to require some professional medical and/or nursing supervision and attention. Intermediate care services encompass a range of services from those below skilled level services to those above room and board.

Intermediate services require some professional supervision but may be performed by properly trained non-

professional personnel. A licensed nurse is required on an 8-hour daily basis for general observation and supervision, but most of the patients' requirements can be met by an attendant.

Intermediate care includes room, food, laundry, professional supervision of activities for protection and safety along with combinations of (1) assistance with ambulation, including getting in and out of bed; (2) assistance with general bathing, hygiene, dressing and eating; (3) provision and supervision of special diets; (4) provision and supervision of medications; and (5) provision and supervision of restorative measures.

4. How often can bills be submitted to Medicaid for services rendered to nursing home patients?

Charges can be submitted as often as the doctor sees the patient. The doctor may charge for any visit to the patient as long as the encounter is medically justified.

5. If the physician must see a patient more than once per month, will he/she be able to be reimbursed for each visit?

As long as it is medically justifiable that the patient be seen more than once per month, Medicaid will cover the visit; however, the degree of illness warranting additional visits must be indicated by the diagnosis code.

6. Please distinguish between a routine visit and a visit for a new or acute problem that develops that requires additional care not otherwise handled on routine visits.

If a physician is seeing a new or established patient for the initial care of a new or acute problem, he may select a procedure code from 90300, 90315 or 90320. For any follow-up care on that initial care, the appropriate code may be selected from 90340-90370.

7. Please give your definition of "ambulatory patient."

Ambulatory is considered not to be bedridden. For the purposes of whether Medicaid will pay for a nursing home visit for a patient who, even though he/she has physical limitations, can be transported to the office, Medicaid will pay for a nursing home visit if the visit is medically justified.

Notes:

If the physician wishes, skilled nursing facilities and intermediate care facilities can arrange with Medicare to have payments for contracted physicians' services to individual patients paid to the facility instead of the physician providing the service.

In order for Medicaid payment to be made to the facility for straight Medicaid claims or for Medicare/Medicaid crossover claims, the facility must request a special provider number for this purpose. The request for the physician nursing home staff provider number must be made in writing to DMA and must contain signed statements from the physicians involved relinquishing any payment for these services to the nursing home. Copies of the contracts with the physicians involved must be included.

After the provider number is assigned, the facility may bill for any visit the contracted provider makes to the home.

Reimbursement will be determined by the usual, customary and reasonable charge (as established by Medicare) of each physician.

The physician service claim form, Health Insurance Claim Form (HCFA-1500) must be used by nursing homes when billing for physician services.

As always, when filing for services covered by both Medicare and Medicaid, follow billing procedures established by Medicare. On crossover claims, Medicaid will pay the coinsurance/deductible determined by the Medicare carrier.

References

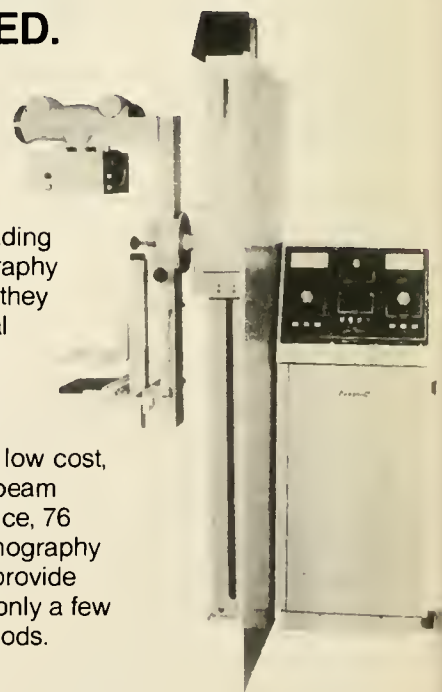
1. Lynn J. Legal and ethical issues in palliative health care. *Seminars in Oncology* (in press).
2. Smallegan M. There was nothing else to do: Needs for care before nursing home admission. *The Gerontologist* 1985;25:364-9.
3. Knight B, Walker DL. Toward a definition of alternatives to institutionalization for the frail elderly. *The Gerontologist* 1985;25:358-63.
4. Lewis MA, Cretin S, Kane RL. The natural history of nursing home patients. *The Gerontologist* 1985;25:382-8.
5. Health care decision-making in the long term care facilities. A policy recommendation of the American Health Care Association, Washington, D.C. Reproduced in the syllabus for the course, "Legal and ethical aspects of health care for the elderly," St. Petersburg Beach, March 7-9, 1985. Sponsored by the American Society of Law and Medicine (Boston, Mass.).
6. North Carolina General Statutes, Chapter 90: Right to Natural Death; article 23.
7. Kapp MB. Response to the living will furor: Directives for maximum care. *Am J Med* 1982;72:855-9.
8. North Carolina General Statutes, Chapter 32A, Powers of Attorney.
9. Kapp MB. Nursing home patients' rights to physical care. *Generations* 1984;30:3 (Spring Issue).
10. Lynn D. Care near the end of life, in Cassell CK, Walsh JR (eds.). *Geriatric medicine* (volume 2). New York: Springer-Verlag, 1984:332-44.

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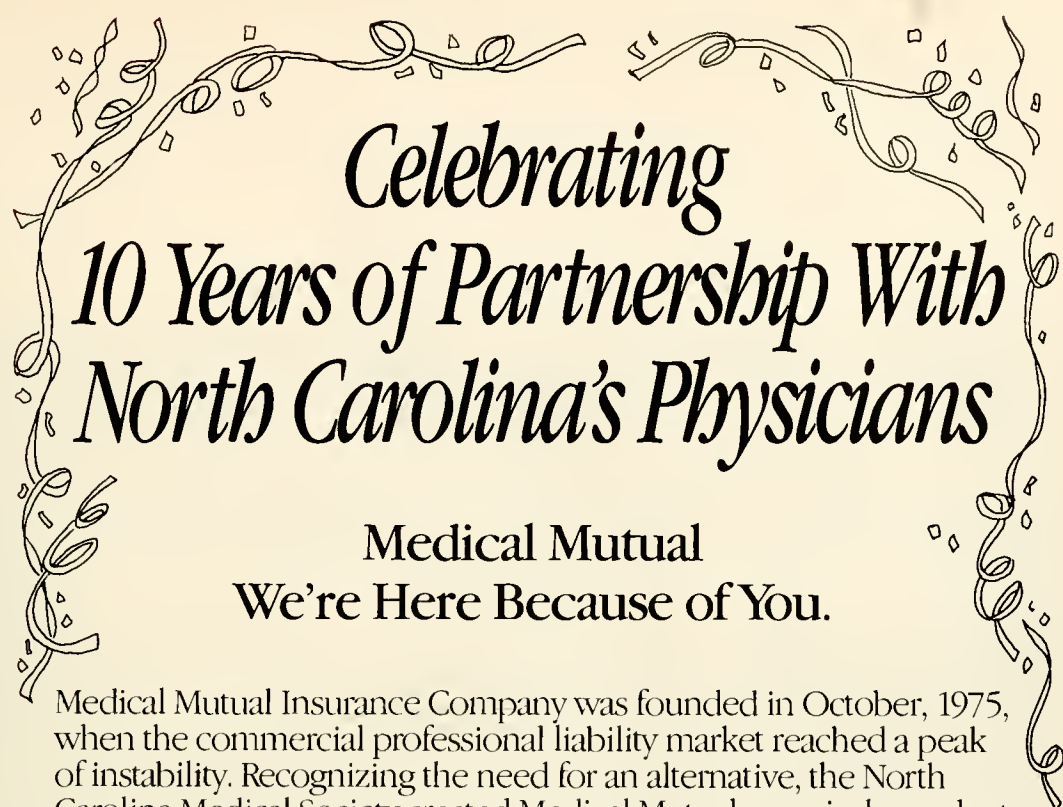


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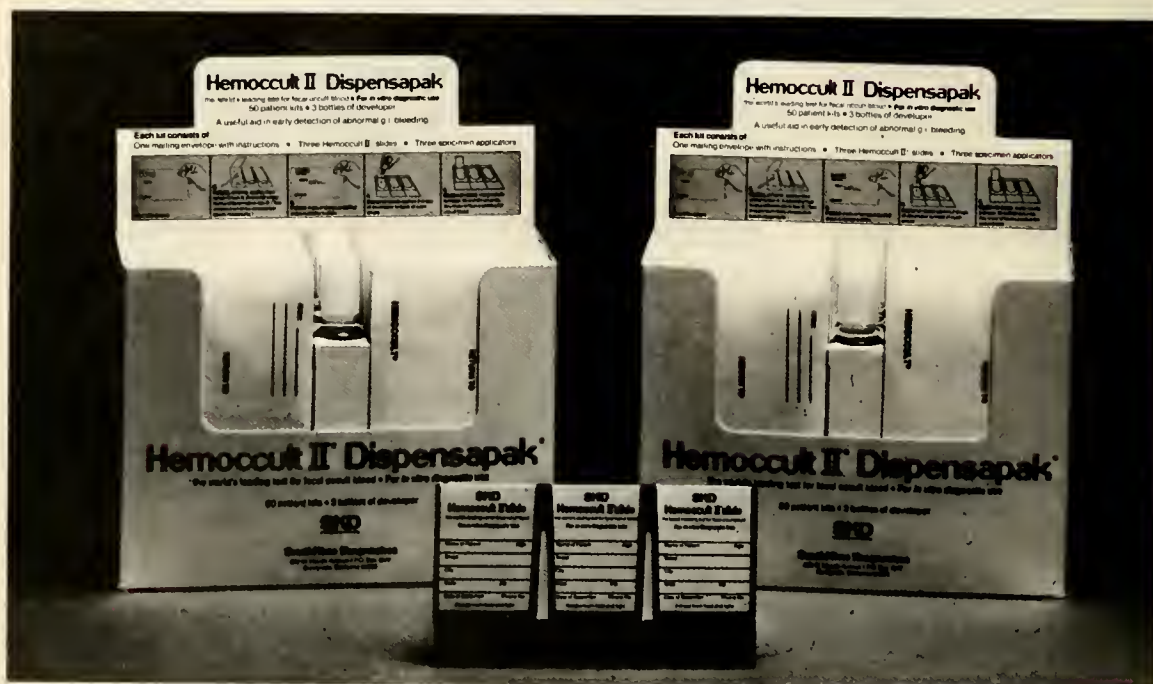
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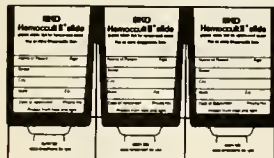
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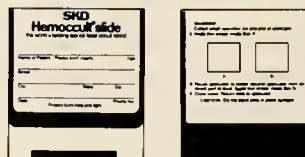
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IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE: continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics and the response observed closely or propranolol should be discontinued (gradually if possible)

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and in some cases, myocardial infarction, following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned, the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patients should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

THYROTOXICOSIS: Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME: several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

MAJOR SURGERY: The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema): PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA BLOCKERS. Inderide LA should be administered with caution since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

DIABETES AND HYPOLYCEMIA: Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure.

Hydrochlorothiazide:

Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

PRECAUTIONS

Propranolol hydrochloride (INDERAL[®]):

GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. Propranolol is not indicated for the treatment of hypertensive emergencies.

Beta-adrenergic blockade can cause reduction in intraocular pressure. Patients should be told that propranolol may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

CLINICAL LABORATORY TESTS: Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

DRUG INTERACTIONS: Patients receiving catecholamine-depleting drugs, such as reserpine, should be closely observed if propranolol is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncope attacks, or orthostatic hypotension.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY: Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18-month studies in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

PREGNANCY: Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

NURSING MOTHERS: Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

Hydrochlorothiazide:

GENERAL: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals.

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs/respective of cause are: Dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present or during concomitant use of corticosteroids or ACTH.

Interference with adequate electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content.

Any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur with administration of thiazides in hot weather; appropriate therapy is water restriction rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged.

Diabetes mellitus which has been latent may become manifest during thiazide administration. If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid disturbance.

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function.

DRUG INTERACTIONS: Thiazide drugs may increase the responsiveness to tubocurarine. The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

PREGNANCY: Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

NURSING MOTHERS: Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing.

PEDIATRIC USE: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

Propranolol hydrochloride (INDERAL[®]):

Most adverse effects have been mild and transient and have rarely required the withdrawal of the therapy.

Cardiovascular: Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresis of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

Central Nervous System: Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometric tests.

Gastrointestinal: Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

Allergic: Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

Respiratory: Bronchospasm.

Hematologic: Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

Auto-immune: In extremely rare instances, systemic lupus erythematosus has been reported.

Miscellaneous: Alopecia, LE-like reactions, psoriasisiform rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

Hydrochlorothiazide:

Gastrointestinal: Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestasis, jaundice), pancreatitis, sialadenitis.

Central Nervous System: Dizziness, vertigo, paresthesias, headache, xanthopsia.

Hematologic: Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

Cardiovascular: Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics).

Hypersensitivity: Purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis), fever, respiratory distress, including pneumonitis, anaphylactic reactions.

Other: Hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness, transient blurred vision.

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

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A Bit on the Wilde Side: MDMA Abuse

Ronald B. Mack, M.D.

• *MDMA is a "designer" drug that would have appealed to a pleasure-seeking Oscar Wilde.*

THESE days a famous literary person with outrageous behavior and eccentric costume would be chronicled on the Donahue program and Johnny Carson show and people would probably be amused and intrigued but not surprised. Strange behavior no longer shocks in this age of adult "show and tell." But in the Victorian Age, non-conformity could land you in the slammer pounding "big ones into little ones." Such was the case of the infamous Oscar Wilde. We are not talking ancient history; my father was 5 years old when *this* gentleman of letters died.

The Victorian Age may not have been a fun time to live unless you were very conservative. Victoria became Queen of England in 1837 when she was a mere lass and her prior schooling consisted primarily of learning the "proper way" to conduct herself. Unfortunately she was not given the opportunity to have a more liberal education; this gave her a rather narrow outlook on the world, i.e., a Victorian perspective of what was going on. The standards of behavior in the Queen's time were extremely strict and if you broke the moral rules you became an outcast. It did not help when the love of Victoria's life, Prince Albert (the father of her nine children), died suddenly leaving her a disconsolate widow. For the next forty years of her life she mourned him, including dressing like a widow. Into this stuffy, rigid milieu enters Oscar Wilde whose evening dress consisted of knee breeches (worse than the corduroy knickers we had to wear in my day), black silk stockings, a velvet coat, a silk shirt and a large bow tie topped off by a large sunflower in his buttonhole. How long would he have lasted in your neighborhood? On the streets of Chicago, he would have had a T_{1/2} (half-life) of 37 minutes.

I could find no evidence that this young rebel took drugs on a regular basis (licit or otherwise), but he did have the ability to consume large quantities of ethanol on a regular basis. One of the drugs I am sure he would have loved is MDMA, AKA "Ecstasy," "Adam," MDMA or 3,4-methylenedioxymethamphetamine. Why would he have liked this drug, you ask? I'll tell you why — it makes you feel good, and Oscar Wilde liked to feel good. Here, let him tell you himself. "I let myself be lured into long spells of senseless and sensual ease . . . I took pleasure where it pleased me and passed on . . . I filled my life to the very brim with pleasure, as one might fill a cup to the very brim

with wine" (or decaffeinated instant coffee).

MDMA is known in the trade as a "designer" drug. "Designer" drugs refer to chemicals prepared to produce a preselected physical effect — a "feel good." The term currently also implies a new "mind-bender" produced chemically by manipulating an existing drug so as to produce a "new" preparation that is not illegal. As you can see, "designer" drugs are like "designer" clothes. I wear them, don't you? Just check my labels, Buster — *II Sears, La J.C. Penney* or when I am feeling extravagant *Le K-Mart*.

MDMA has been available since 1914. It was briefly popular during the 1960s when it seems almost anything was tried for its psychedelic effects, e.g., smoking banana peels, sniffing Italian red peppers, etc. It seems to have become quite popular recently and prescribed legally by some in our profession, but as we shall see momentarily its legal status has been rescinded. This drug is a synthetic compound derived from one of the essential oils in nutmeg — myristicine. It differs from the psychedelic MDA (3,4-methylenedioxymethamphetamine) only by the presence of a methoxyl group in the molecule. Pharmacologically, MDMA produces clinical effects similar to both mescaline and amphetamines. Mescaline, you may recall, can produce rather remarkable vivid perceptual distortions, more visual than auditory; time is distorted, as are body image, space, and so on. A real fun time! In low doses the psychotropic effects are said to be similar to other hallucinogens. MDA, peyote, etc., but in larger doses it acts like LSD.

The users of "Ecstasy" exclaim that the chemical relaxes inhibitions and increases effective communication and sex (spare me from another aphrodisiac; none of them work, except of course shrimp marinara with cannoli for dessert). Until recently, you could have MDMA prescribed if your psychiatrist believed in it, but of course you still can buy it on the street. When purchased on the street, if it's the real stuff, you can buy it in gelatin capsules or as a powder to be mixed with fruit juice. It sells for about \$10 to \$30 for 100 mg. Therapists who endorse this drug allege that with controlled dosages it can "neutralize emotional defenses," help the patients get in touch with their feelings (whatever that means; I'm sick of that phrase!! Will someone please think up a new one!!). Many satisfied customers allege that with usual doses one experiences a feeling of joy and well-being without the hallucinatory dissociation from reality.

From the Department of Pediatrics, Bowman Gray School of Medicine of Wake Forest University, Winston-Salem 27103.

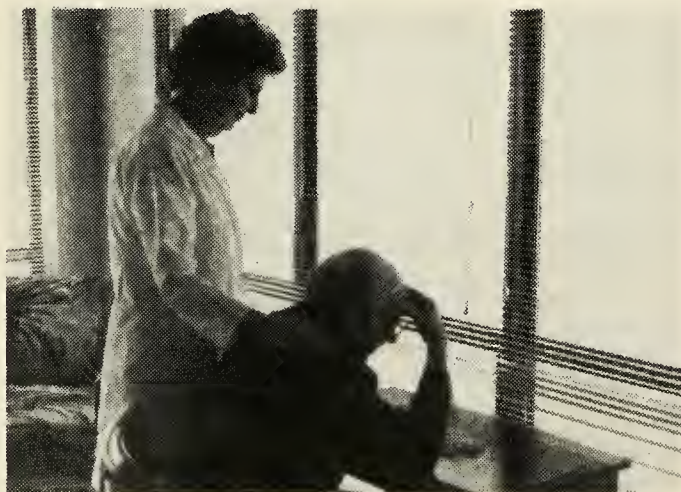
Speaking of "Ecstasy," do any of you remember the famous movie of that name with the ever-popular star Hedy Lamarr? When I was a young lad this was an adult's-only film (no "R" rating or "X" rating in those days). What a fuss about nothing — the movie shows Hedy, barefoot all over, swimming for a few nanoseconds!! For shame!! My 5-year-old grandson, Jeb, sees more nudity than that when he goes to the swimming pool or turns on cable TV.

Now, what did Oscar Wilde do to offend public morals and land in jail? In case you forgot, this dude was married and fathered two sons but he also indulged in other sexual outlets that were not publicly (or is it not publicly) accepted. Hard to believe, but the Marquis of Queensberry (the boxing rules expert) who advocated not hitting below the belt literally did so figuratively by accusing our Wilde man of being a card-carrying homosexual. Our anti-hero sued the Marquis for libel (bad move). Queensberry's lawyers found plenty of evidence and witnesses to prove that Oscar was in fact gay. Oscar Wilde was subsequently indicted for "committing acts of gross indecency with other male persons." He was found guilty and sentenced to two years in prison at hard labor. In prison he wrote an incredible letter — very, very long and moving called *De Profundis* — that is one of the most explicit examples of a person's feelings that I have ever read. In 1897 he was released from prison and wrote the famous poem, *The Ballad of Reading Gaol* — "And all men kill the thing they love, By all let this be heard, Some do it with a bitter look, Some with a flattering word, The coward does it with a kiss, The brave man with a sword!"

Well, back to "feeling good." If you get too much MDMA or use it for prolonged periods you can get amphetamine-like side effects which include tachycardia, cardiac arrhythmias, hypertension, panic attacks, remarkable diaphoresis, diplopia, bruxism and something more weird: involuntary teeth clenching. The FDA has recently cried "Hold, Enough" and placed an emergency ban on the use of MDMA as of July 1, 1985. This drug was placed in Schedule I of the Controlled Substances Act ("has high abuse potential, no acceptable medical use and no accepted safety for use"). The Drug Enforcement Administration cites abuse of MDMA as a "nationwide problem." This restriction may cut down on some of the "legitimate" use of this drug by some psychiatrists but certainly the illicit manufacture, distribution and use will flourish. I must admit that I have not seen a case of MDMA abuse. We did have a patient who said his family burned all the umbilical cord stumps of the children born to them to prevent enuresis. (He admitted upon questioning to two facts: (1) the cord was not still attached to the baby when burned; (2) it prevented bedwetting 100% of the time.)

The management of an adverse reaction to MDMA would seem to be very symptomatic, i.e., monitoring heart rate and rhythm and blood pressure and using drugs like propranolol for worrisome tachycardia and severe hypertension with nitroprusside or phentolamine. Maybe descrection is the better part of valor here. If any of your patients feel that they need this drug to stay afloat, suggest instead cannoli and a cup of espresso. That ought to do it. It works for me!!

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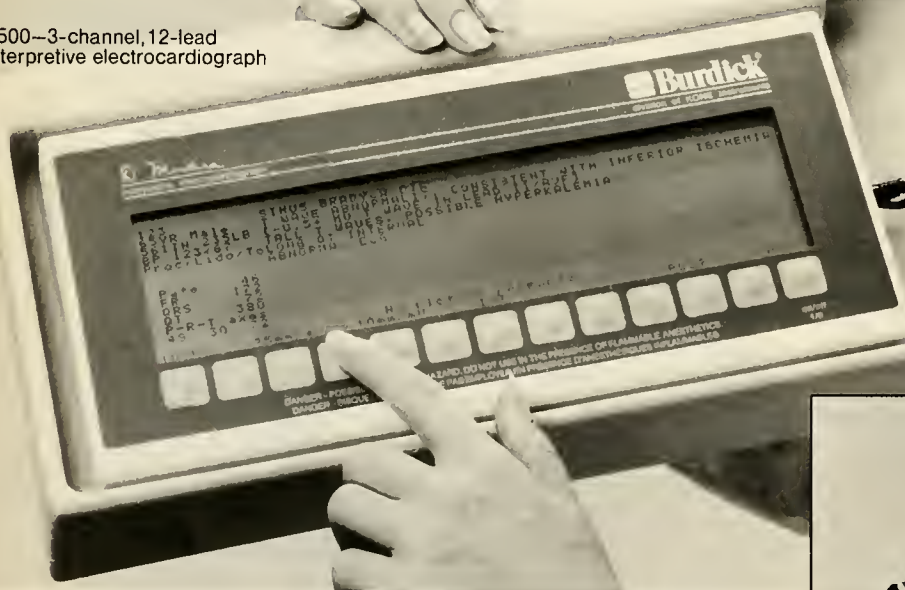
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The Rankin Clinical Research Unit of Duke University Medical Center Commemorates 25th Anniversary

Edward L. C. Pritchett, M.D. and William G. Anlyan, M.D.

• *A recollection of the first 25 years of Duke's Rankin CRU.*

THE Rankin Clinical Research Unit of Duke University Medical Center commemorates the 25th anniversary of its founding this month.¹ The Unit's lineage is the specialized research hospital wards that were an important innovation of American medicine in the early 20th century. Prior to that time, faculty members in American medical schools commonly maintained offices for private practice and supported themselves with the income from this practice. Remuneration for teaching and research was meager. With the establishment of full-time faculties around the turn of the century, physician time was more concentrated in the medical school hospitals.

The first dedicated research ward was an entire hospital, the Hospital of the Rockefeller Institute, which opened in 1908. Rufus Cole came from the Johns Hopkins Hospital to be its first director. Dr. Cole was interested in lobar pneumonia, and the Hospital of the Rockefeller Institute developed a strong theme of microbiology in its early years. Similarly, Eugene Dubois founded a research ward at Bellevue Hospital in 1913. In 1925 James Howard Means opened Ward 4 of the Massachusetts General Hospital for clinical research. Other metabolic units opened in 1935 at the University of Michigan and at the Mayo Clinic.

In 1953 the National Institutes of Health (NIH) opened its clinical center in Bethesda, Maryland. The initial staff was recruited from the research wards at the University of Michigan, the Mayo Clinic, and the Massachusetts General Hospital. By the late 1950s the NIH began to discuss the concept of extramural clinical research centers. Funds to establish twelve centers were appropriated by Congress in 1960, and applications were accepted by the Division of General Medical Sciences.

The application from Duke University Medical Center was assigned grant number OG-5; Frank L. Engel was the principal investigator (see cover photo). Like many early Duke medical faculty, Dr. Engel was tied to Johns Hopkins, having received his M.D. degree there in 1938. He

came to Duke in 1947, having been in the interim at Woods Hole in Massachusetts, Mount Sinai Hospital in New York, Yale University, and Emory University. Dr. Engel wrote proposal OG-5, "To Establish a General Clinical Research Center." In addition to being principal investigator, Dr. Engel served as Chairman of the Center Advisory Committee and as Program Director, jobs that are now divided among three individuals. The application indicated that the medical center intended to recruit a permanent director from the outside. The original advisory committee consisted of the chairmen of the departments of Biochemistry, Medicine, Pediatrics, Psychiatry, and Surgery. The application proposed putting the center in Strudwick Ward, a vacant area requiring minimal renovation before it could be used. A permanent home for the center awaited construction of a new addition to the medical center, The Clinical Research Building.

The application opened with the statement, "The Clinical Research Center is conceived as a facility in which patients may be hospitalized for controlled observation and study in relation to the diverse programs of clinical research in progress or contemplated at the Duke University Medical Center." Dr. Engel anticipated that investigators would fall into five large categories: Endocrinology and Metabolism; Cancer and Chemotherapy; Cardiovascular, Pulmonary and Renal Medicine; Behavioral Medicine; and Rheumatology. He recognized that both adult and pediatric patients would be studied in each group. Among the initial cohort of investigators was James Wyngaarden, who proposed to study "Purine Metabolism in Gout." Dr. Wyngaarden would later become director of the National Institutes of Health. Another young investigator was William Anlyan, a general surgeon, who proposed to study "Etiology and Treatment of Thromboembolic Disorders." A few years later Dr. Anlyan would become dean of the medical school and principal investigator of the General Clinical Research Center grant.

The initial grant application was submitted in January 1960. In April Edgar Lee, Jr. (Chief, *Ad hoc* Section, Clinical Research Facilities, Division of General Medical Sciences) sent a revised budget to Dr. Engel indicating an intention to fund the application. However, Dr. Lee's letter closed with the traditional NIH warning, "this letter does

From the Department of Medicine, Duke University Medical Center, Durham 27710.

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not constitute a formal statement of award." Drs. Engel and Lee continued to correspond throughout the summer. Dr. Engel continuously requested reassurance that the grant would be funded, and Dr. Lee attempted to provide that reassurance, without abandoning the stated caveat. On October 17, 1960 Dr. Engel received a telegram stating "Processing of award for clinical research center in progress. What do you request as initial payment which may not exceed \$100,000?"

Apparently the initial grant, OG-5, was funded based solely on the written application. At the present time, the NIH customarily visits institutions applying for or renewing large center-type grants. Investigators make scientific presentations at these "site visits"; the site visitors inspect laboratory facilities and meet with institutional officials. Site visits become landmarks in the histories of large programs, and the NIH conducted them at Duke when the CRU applied for renewal in 1966, 1973, 1978, and 1983.

The October funding notice did not allow time for the proposed renovations before investigators were ready to begin admitting patients. Therefore, three beds on Welch Ward, a general pediatric ward, were dedicated to the center, which locally was referred to as The Clinical Research Unit (CRU); patients were admitted beginning December 1, 1960. Four additional beds for adult patients were opened on Osler Ward on February 19, 1961. During the second funding year seven beds for both adult and pediatric patients were occupied on Welch Ward, and the unit achieved a true geographic identity. Later that year an additional eight beds were opened, bringing the total number to 15. By that time construction of The Clinical Research Building was well underway. Unexpended funds for renovation actually were returned to the NIH.

James B. Sidbury, Jr. was recruited from the Department

of Pediatrics at Johns Hopkins to be the first director of the unit in 1961. Dr. Sidbury was a native North Carolinian. He received his M.D. degree from Columbia University College of Physicians and Surgeons, and he was trained in both medicine and pediatrics, the latter at Johns Hopkins. He was an instructor at Emory University, a staff member of the Communicable Disease Center, and an assistant professor of pediatrics at Johns Hopkins before being recruited to Duke. He was appointed associate professor of pediatrics and Director of the CRU at Duke in 1961. His research interest was inborn errors of metabolism.

In May 1963 The Clinical Research Building opened (figure 1), and the CRU moved to its permanent home, named Rankin Ward for Watson Rankin, the distinguished physician who had been in charge of the Hospital Section of the Duke Endowment. The new unit contained seventeen beds in five single rooms and six double rooms. A special room with a one-way mirror window was designed for studies on psychiatric patients. A kitchen on the ward provided regular meal service as well as special diets for patients on metabolic protocols. Office and laboratory space for the director and a small core laboratory for sample handling were included. The Women's Auxiliary provided furniture for the patient lounge, including a television set (still an uncommon amenity at the time). The entire unit was air conditioned, an important improvement over other sections of Duke Hospital where the hot Carolina summers baked the wards.

By the mid-1960s administration of the Unit had assumed its contemporary form. At the NIH the Division of Research Resources had assumed responsibility for the General Clinical Research Centers program, and grant number OG-5 had been reassigned number RR-30. At Duke Dr. Anlyan was Dean of the Medical School and

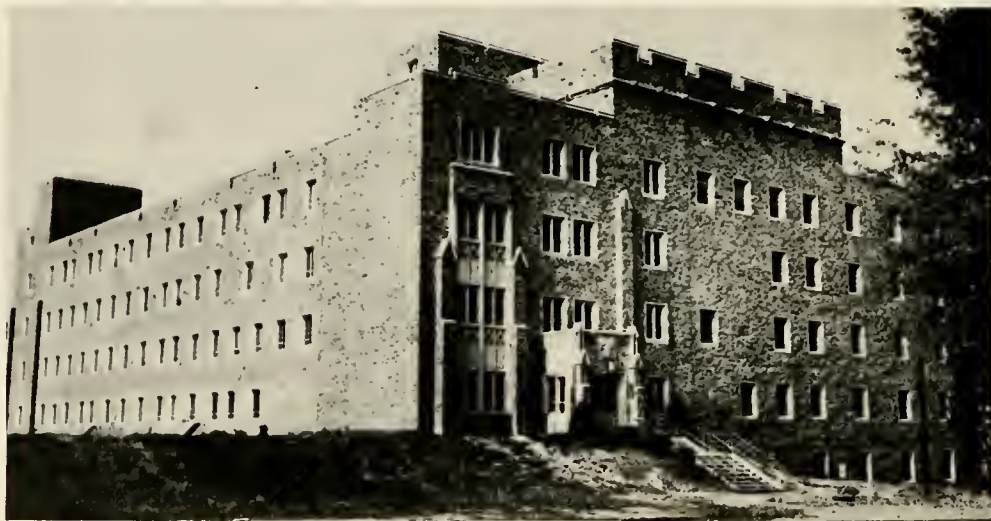


Figure 1. The Clinical Research Building in 1963. This extremely unusual photograph shows a free-standing structure. Within a few years this building was connected to the main hospital by a large administrative core called The Woodhall Building. An addition to the north side, which opened in 1968, further camouflaged this facade. It is nearly impossible to identify this structure in the east profile of the medical center at the present time. (Photograph courtesy of the Duke University Archives.)

Principal Investigator of the grant. Dr. Sidbury was Program Director; and Morton Bogdonoff was Chairman of the Advisory Committee, which included representatives from all clinical departments and some basic science departments. During its first several years of operation, the diversity of the unit predicted by Dr. Engel was demonstrated by the range of investigators using the most bed days. These included two pediatricians, Drs. Sidbury and Robert Stempfel; a cardiologist, Henry McIntosh; a neurosurgeon, Blaine Nashold; a gastroenterologist, Julian Ruffin; an endocrinologist, Harold Lebovitz; and a hematologist, Wayne Rundles. Training was an important theme. In 1966 there were 25 separate training grants active in the institution, and trainees from almost all of them rotated through the CRU.

In 1968 an addition to the north side of The Clinical Research Building opened and added one double room and two single rooms to the Unit. The single rooms were intended for patients requiring "intensive care unit" treatment, and both had the latest equipment for bedside electrocardiogram monitoring. About this time an isolation room with laminar air-flow control was built for neonatal patients with immune deficiency diseases.

Dr. Samuel Wells, a general surgeon, was appointed associate director of the Unit in 1972. Dr. Wells had received his M.D. degree from Emory University and then did two years of training in internal medicine at Johns Hopkins. He received additional training in general surgery and additional research experience at Washington University, Barnes Hospital, St. Louis; The National Cancer Institute; The Karolinska Institute, Stockholm; and Duke University before being appointed assistant professor of surgery at Duke in 1970. Dr. Wells used the CRU extensively as a site for studies of patients with medullary carcinoma of the thyroid gland, multiple-endocrine neoplasia type II, and parathyroid disorders.

When the renewal application was written in 1973, Drs. Sidbury, Nashold, and Lebovitz remained among the most active users. Drs. Stempfel and McIntosh had departed, and important new programs had emerged. Delford Stickel (general surgery) and J. Caulie Gunnells (nephrology) studied patients with renal diseases. Wendell Rosse (hematology) and John Tindall (dermatology) became major users, as did William Kelley, who studied abnormalities of purine metabolism. Rebecca Buckley developed a strong program studying immune deficiency diseases in children. Dr. Buckley's protocol #150, submitted in 1965, remains the longest continuously active protocol on the unit; and Dr. Buckley has the distinction of being the only investigator to present at three CRU site visits (in 1973, 1978, and 1983).

Dr. Sidbury departed in August 1976 to become scientific director of the child health program at the NIH, and Dr. Wells was appointed Director. During Dr. Wells' tenure as

Director, the core laboratory was substantially expanded, and radioimmunoassays for parathormone, calcitonin, and cyclic adenosine monophosphate were installed along with atomic absorption spectrophotometric assays for calcium and magnesium. These assays serviced a burgeoning group of investigators interested in disorders of calcium metabolism. In addition to Dr. Wells, this group included George Leight (surgery); John Weinerth (urology); and Francis Neelon, Marc Drezner, and Kenneth Lyles (endocrinology).

In addition to expanding the core laboratory, the CLIN-FO computer system was acquired and a second isolation room was built by Dr. Wells. Drs. Lebovitz and Buckley continued to have large programs. Allen Roses (neurology) began a new large program studying patients with myotonic muscular dystrophy. Interdisciplinary research evolved between Dr. Wells (general surgery) and the associate director, Dr. Neelon (endocrinology), and between Drs. John Gallagher and Edward Pritchett (cardiology) and Will Sealy (thoracic surgery).

In 1981 Dr. Wells was appointed Professor and Chairman of the Department of Surgery at Washington University, St. Louis; Dr. Pritchett succeeded him as Director of the CRU. At that time Dr. Pritchett was collaborating with David Shand (pharmacology) in studying the clinical pharmacology of antiarrhythmic drugs and calcium channel blocking drugs. Drs. Buckley and Roses continued to be major users of unit resources; and Hugh Sampson, who had been trained by Dr. Buckley, was appointed associate director. Dr. Sampson studied patients with atopic eczema and food allergy in addition to sharing responsibility with Dr. Buckley for studying patients with immune deficiency diseases.

The composition of investigators using the CRU in the mid-1980s continued to confirm Dr. Engel's prediction of diversity and the tradition of collaboration between basic and clinical sciences. Ninety-one investigators with 110 academic departmental appointments were using the CRU. Clinical investigators were active from the departments of Medicine, Pediatrics, Surgery, Psychiatry, Obstetrics and Gynecology, Radiology, and Community and Family Medicine; and almost a quarter of the appointments were in basic science departments.

Acknowledgment

The authors appreciate the following individuals who lent their records and their recollections to us while we wrote this history: William Glitz, Mildred Engel Handleman, Leon Lack, June Perry, Eugene Stead, Jr., R. Wayne Rundles, James B. Sidbury, Jr., and Samuel Wells. We also acknowledge the contribution of the Duke University Archives (William King) and the Medical Center Archives (James Gifford).

Reference

1. Pritchett ELC, Anlyan WG. A history of the Rankin clinical research unit of Duke University Medical Center. *Arch Intern Med* 1985;145:1244-48.

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North Carolina Medical Journal

Features for Patients

December 1985



John V. Thomas, M.D.

When you are told that you have cataracts, it is natural to be concerned about your vision and uncertain of what will follow. My purpose in writing this booklet is to reassure you by describing what cataracts are, what lens implants are and how cataract surgery with lens implantation is done. I have tried to anticipate and answer some of the questions you may have and hope that this will serve you as a useful guide before and after cataract surgery.

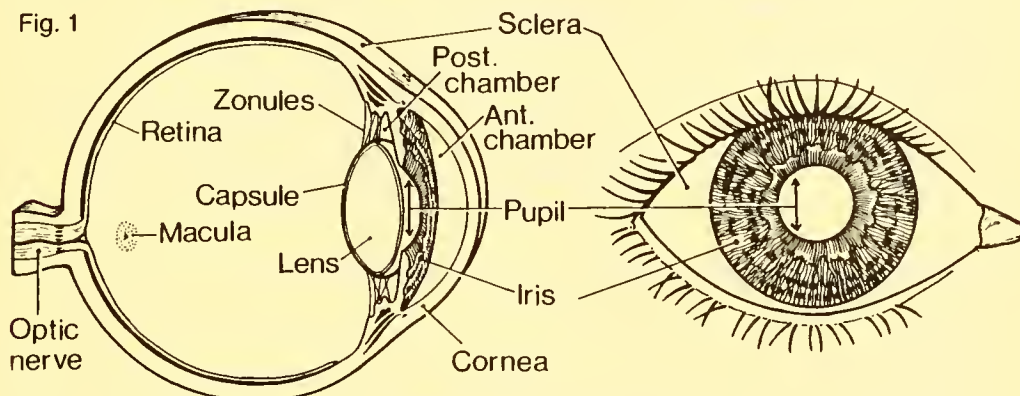
From 100 Charles River Plaza, Boston, MA 02114. Illustration and design by Laurel L. Cook.

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1 What is a cataract?

In order to understand what a cataract is, one needs to know a little bit about the eye and how it works. The eye is almost spherical in shape and contains within it a lens which is clear and colorless like glass (see Figure 1). The lens is slightly smaller than a lima bean and lies behind the iris. The iris is the part of the eye which makes a person blue eyed or brown eyed.



The lens of the eye is surrounded by a thin, saran-wrap like membrane called the capsule (see Figure 1). The lens has the function of focusing light on the retina which is a light-sensitive lining inside the eye. The retina is connected to the optic nerve which in turn is connected to the brain. When light falls in the retina, visual messages are transmitted to the optic nerve and finally to the brain enabling us to see.

Normally, light passes through the clear cornea (the transparent dome-like structure in the front portion of the eye), through the pupil (which is the round opening formed by the iris) and through the colorless lens which focuses it on the retina (see Figure 2).

EYE WITH NORMAL LENS

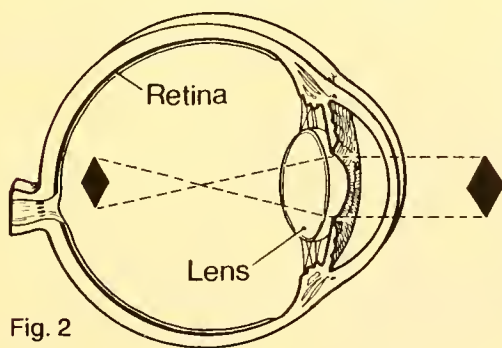


Fig. 2

EYE WITH CATARACT

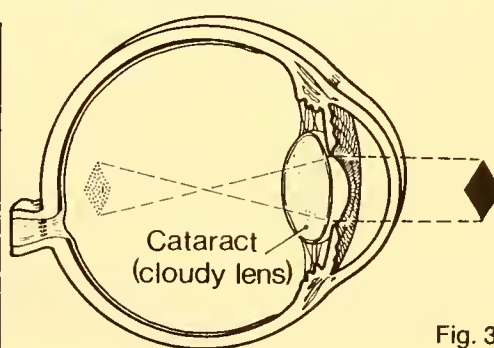


Fig. 3

When a colorless lens acquires color, becomes cloudy or slightly opaque, it is called a cataract. While a clear lens is able to let rays of light pass through itself, a cataract prevents light rays from passing through as they should. This causes a blurred image to fall on the retina and, as a result, causes a person to have blurred vision (see Figure 3).

A cataract is not a film over the eye. It is also not a growth or tumor. It does not spread from one eye to another like an infection. It develops independently in each eye, although both eyes are usually affected. One eye may acquire a cataract months or even years before the other eye does.

2 What causes a cataract?

Most cataracts are due to increasing age. Other less common causes are injuries to the eye, inflammation within the eye, certain types of medication, x-rays, and diseases such as diabetes.

Cataracts do not occur due to poor eating habits, smoking or drinking too much, or overusing your eyes. Having a cataract does not mean that the rest of your body is deteriorating and not in good shape. You can be very healthy and still have cataracts. Even babies are occasionally born with cataracts.

3 How many people have cataracts?

More than 50% of all Americans can expect to have cataracts by the time they are 65 years of age.

4 How rapidly do cataracts develop?

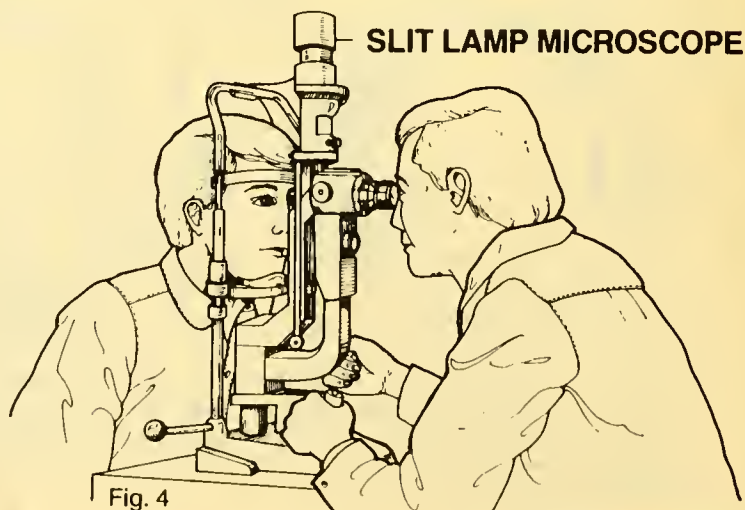
Cataracts usually develop slowly over many years or even decades although some may develop more rapidly.

5 Is visual loss from a cataract permanent?

No. Unlike certain other diseases of the eye, for example glaucoma, the vision lost from a cataract can be restored.

6 What are the symptoms of a cataract?

They can vary from person to person. Blurred vision or a dimming of vision is common. You may also have difficulty reading small print and driving at night.



7 How is a cataract diagnosed?

A diagnosis of a cataract is made by testing your vision and by looking at the lens within your eye with a slit lamp microscope (see Figure 4).

8 How is a cataract treated?

At first, a change in eyeglasses might help. Later, as the cataract advances, even changing glasses will not improve vision. At this point, the treatment is surgical.

Eye exercises, vitamins, or eye drops do not cure cataracts. A lot of research is being done to develop non-surgical methods of treatment and it is possible that in the future we may be able to stop the progression or prevent the occurrence of cataracts.

9 How successful is cataract surgery?

Very successful. 95% of people have improved vision after surgery.

10 Can a laser be used instead of surgery to remove a cataract?

No. A laser cannot be used to remove a cataract. The laser is often confused with an instrument called a phacoemulsifier, which uses high frequency sound waves to break up the cataract during surgical removal.

11 When will I be ready for cataract surgery?

You will know that you are ready when you have trouble seeing well enough to do things you must or would like to do. If, for instance, you wish to read and cannot read or wish to drive and cannot drive or if you feel unsafe walking or feel embarrassed by not recognizing friends on the street, you should consider surgery. On the other hand, if you have less than normal vision but are content with things as they are, the surgery can be postponed indefinitely, without harm.

Most cataract surgery is elective. Leaving a cataract in the eye almost never damages any other part of the eye. Allowing a cataract to progress does not compromise the vision you will get after surgery.

Because of new advances in surgical technique, it is no longer necessary to wait until a cataract is "ripe" or hardened. Before you decide to have cataract surgery, take the time to think it over and talk about it with family and friends.

12 Am I too old for cataract surgery?

No. Age by itself is not a factor in deciding whether or not to perform cataract surgery. General health, lifestyle and the medical condition of the eye are the important considerations.

As an example, if you are over eighty, in poor general health, and are sedentary, cataract surgery probably would not be necessary. If on the other hand, you are over eighty, healthy, alert and active, cataract surgery would probably be beneficial.

It is important to remember that with advanced age, the eye may develop disorders in addition to cataract that might limit vision, even if the cataract were removed. For example, macular degeneration which is an aging process in the macula (the part of the retina responsible for clear central vision that enables you to see small print) can prevent the restoration of good vision even after a cataract is removed.

13 What are the different ways in which cataracts are removed?

Basically, there are two ways in which a cataract can be removed. In both techniques, the eye is surgically opened.

1 In the "Intracapsular" technique, an enzyme is injected into the front portion of the eye which weakens the zonules (see Figure 1) which hold the lens in place. The entire cataract is then removed from the eye with a cold probe which is brought into contact with the lens capsule (see Figure 5). The probe freezes a portion of the cataract which then sticks to it and enables the surgeon to pull the entire cataract out of the eye. "Intracapsular" means inside the capsule and "intracapsular cataract extraction" means that the cataract is taken out while it is inside the capsule.

INTRACAPSULAR

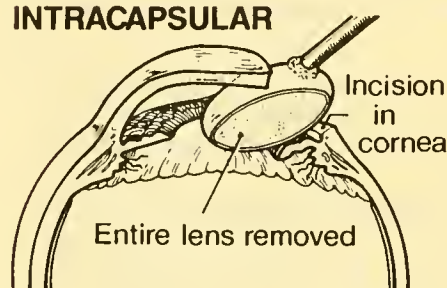


Fig. 5

EXTRACAPSULAR

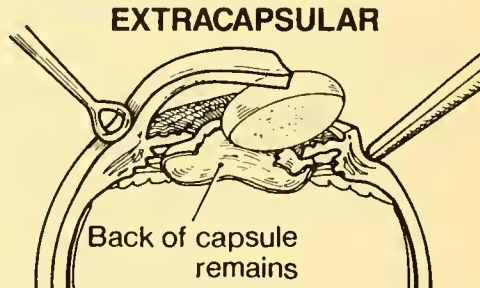


Fig. 6

2 In the "Extracapsular" technique, an opening is made in the front part of the lens capsule and the contents of the capsule are gently removed from the eye leaving an intact back capsule in the eye (see Figure 6). The capsule is clear and allows light to pass through normally. Advantages of leaving the back capsule in the eye are that it may help prevent retinal detachment and macular edema (swelling of the retina). A disadvantage of extracapsular extraction is that the back capsule in some eyes may become cloudy months or years after surgery and reduce a person's vision. However, with the use of a laser, vision can be restored by a painless procedure taking only a few minutes and done in your doctor's office. Phacoemulsification is a variation on the extracapsular technique in which a needle-like device producing high frequency sound waves is used to break up the cataract while at the same time sucking it out of the eye.

At present, it is generally thought that the extracapsular technique is the best way to remove a cataract. However, there are exceptions to this and your surgeon will decide which is best for your particular eye.

14 What is a lens implant?

A lens implant (intraocular lens or IOL) is a man-made, tiny, clear, plastic device which is placed inside the eye at the time the cataract is removed. It replaces the natural lens and remains permanently within the eye.

15 If I don't want an implant, how can my vision be restored after cataract surgery?

If an implant is not placed in the eye, cataract glasses or contact lenses are two options by which vision can be restored after surgery.

Although cataract glasses are a tried and true way to restore sight after surgery, they have several drawbacks (see Figure 7). They make things appear closer to you and about one-third larger than they really are. In addition, they may make objects seem curved and distort side vision so that to see things clearly to the left or right, you have to turn your head instead of just glancing in that direction. You may also have trouble doing simple things like putting a key in a lock or going up and down stairs. Driving can also be difficult. However, many people get along quite well with cataract glasses.

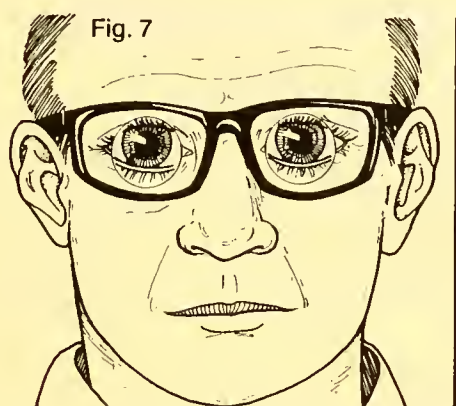


Fig. 7

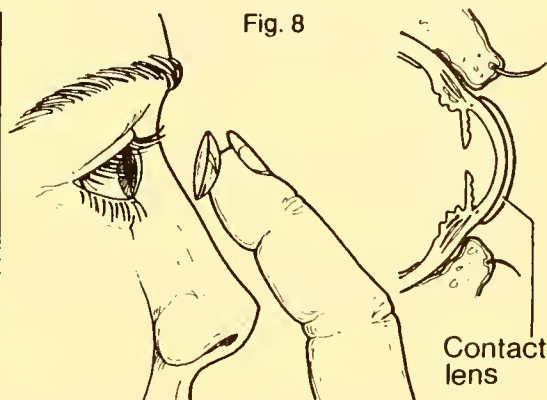


Fig. 8

Contact lenses provide more natural vision than do cataract glasses. Objects appear only slightly larger than they actually are, and side vision is more normal. However, contact lenses lie on the outer surface of the eye (see Figure 8) and most types have to be removed, cleaned and reinserted relatively frequently. Older people may find them somewhat difficult to handle.

Lens implants are optically superior to cataract eyeglasses. Vision with an implant is as close as possible to the normal vision you had with your own natural lens. Lens implants are also more convenient than contact lenses.

16 How long have lens implants been used?

The first lens implants were used over 30 years ago. More recently the design of implants has been improved and perfected and cataract surgery with lens implantation is now a common procedure.

17 How common is cataract surgery with lens implantation?

In 1983, 700,000 cataract extractions were performed in the United States. Over 500,000 or 70% of these patients received lens implants.

18 Are there different types of lens implants?

Yes. They come in various shapes and sizes, but basically, there are two types of implants which are in common use today: (see Figure 9)

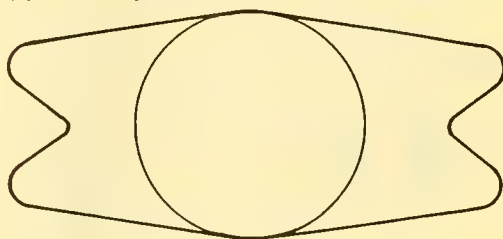
1 Anterior chamber implants:

These implants are inserted into the anterior chamber of the eye which is the space between the iris and the cornea (see Figure 10). They are usually used when intracapsular cataract surgery is done.

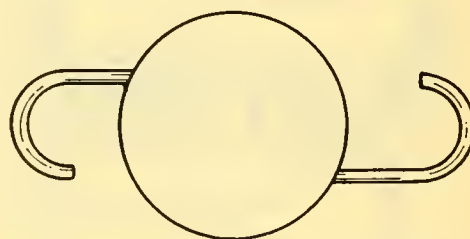
2 Posterior chamber implants:

These implants are inserted into the posterior chamber which is the space behind the iris (see Figure 11). They are used when extracapsular cataract surgery is done. The back of the lens capsule that is left at the time of extracapsular cataract extraction provides a support for these implants.

ANTERIOR CHAMBER IMPLANT



POSTERIOR CHAMBER IMPLANT



These diagrams are much larger than actual size of implants.

Fig. 9

19 Which type of implant is best for me?

Although there has been an increase in the use of posterior chamber lens implants in recent years, your surgeon will use his judgment in deciding which type is best for your particular eye.

20 What is a "secondary implant?"

If a person has a cataract removed without lens implantation, his vision is corrected with cataract eyeglasses or a contact lens. If neither can be tolerated, it is possible to put an implant in the eye even years after the cataract is removed. In such an instance, the implant used is called a "secondary implant."

21 What type of testing do I have to go through before having cataract surgery with lens implantation?

The tests mentioned below are done in your ophthalmologist's office a few weeks before your cataract surgery. Your vision will be tested and the pressure in your eyes will be checked. Your pupil will be made larger with eyedrops so that the back of your eye can be checked thoroughly for diseases that can affect the success of the operation, such as diabetes and macular degeneration. You should remember that after dilation, your vision for reading will be blurred for a few hours. Also when you go into the sun light, the light may be very bright because more light is now entering the eye. So it is advisable to bring sunglasses with you.

The focusing power of the implant that will be appropriate for your eye is also calculated. To do this, the curvature of the cornea or front surface of your eye has to be measured using an instrument called a keratometer. This instrument does not touch the eye and the procedure is painless. The length of the eye from back to front is also measured using an ultrasound machine (see Figure 12). In this test the instrument touches your eye but there is no pain because your eye is numb from an anesthetic eye drop placed in it before the test.

It is also important to have your family doctor or internist check you and certify that you are healthy enough to go through eye surgery.

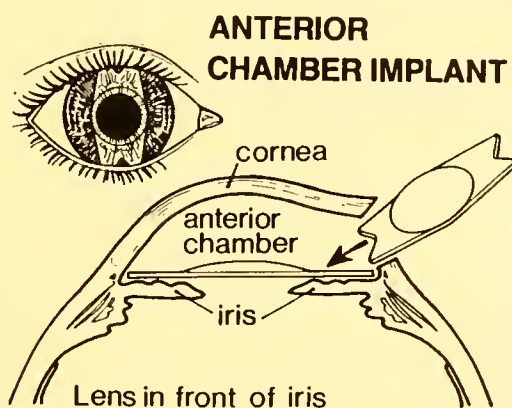


Fig. 10

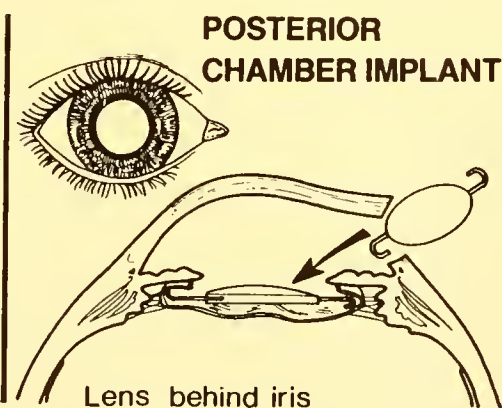


Fig. 11

22 Can I have an implant if I have glaucoma?

Yes. It is safe to put a posterior chamber implant in an eye with glaucoma. The presence of such an implant in the eye does not make the glaucoma worse.

23 Is it possible that an implant will not be put into my eye during cataract surgery even though I was told to expect one?

Yes. Although most cataract operations proceed smoothly, occasionally conditions arise during surgery that make implantation inadvisable. Your surgeon will use his best judgment at the time of surgery in determining whether an implant should be put in. Even if an implant is not put in during the cataract operation, it is possible, in some cases, to put one in at a later date.

24 Will I have pain during the operation?

No. Due to medications that make you slightly drowsy and an anesthetic solution injected around the eye, cataract surgery is a painless and comfortable procedure.

25 Will I need to use my glaucoma medications after cataract surgery?

Yes.

26 Is the implant put into my eye at the same time that my cataract is removed?

Yes.

27 During the operation, will I be able to see with the eye being operated on?

No. The anesthetic solution which is injected around the eye just before cataract surgery prevents the optic nerve (the nerve which carries visual messages) from functioning for a few hours. So during surgery, you don't see any light, the surgeon's hands, or the surgical instruments with the eye that is being operated on. Your other eye will be able to see as usual, but will be covered with sterile drapes to avoid infection in the operated eye.

28 Will both of my eyes be operated on at the same time?

No. It is best to do one eye at a time, so that you always have the use of one of your eyes while the other one heals. The second eye can be operated on a few months later.

29 Do I need to stop aspirin, coumadin, or other blood-thinners before surgery?

Yes. Aspirin and other blood-thinners prevent your blood from clotting and can produce excessive bleeding during your operation. So it is important that you tell your surgeon that you are taking these medicines. Most likely, he will have you stop it several days before surgery. You should also inform your internist about this. After surgery, you may start taking them again.

30 Should I continue other medicines until the date of surgery?

Yes. Medicines that you may be taking for conditions such as high blood pressure should be continued until the date of surgery. It is important to tell your surgeon or

ULTRASOUND SCANNER

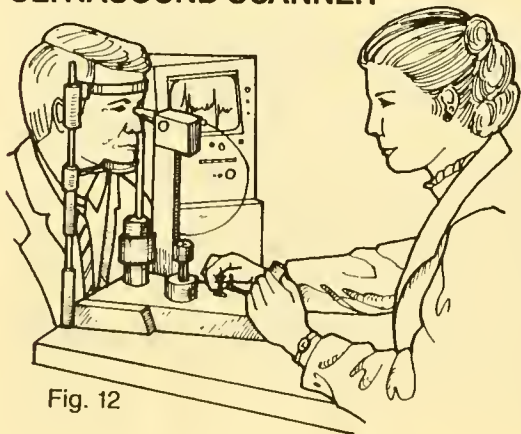


Fig. 12



Fig. 13

his or her nurse all the medications you are using so that you can be advised appropriately.

31 What happens immediately before cataract surgery?

Before surgery, certain routine blood and urine tests, a chest x-ray, and an electrocardiogram are done. These help to ensure that all will go well for you during and after surgery.

It is important to remember not to eat or drink anything after midnight on the day before surgery. On the morning of surgery, dilating eye drops and antibiotic eye drops will be given to the eye being operated on.

After you are taken to the operating room, an intravenous (I.V.) tube is connected to your arm. Through this tube a sedative is given. This will make you quite drowsy. During this period, an anesthetic solution is injected around the eye.

After a few minutes, the skin of the eyelids, forehead and cheek on the side of the eye to be operated and the eye itself are numb. The skin is then washed with soap, water, and alcohol to make it sterile and help prevent the eye from being infected during surgery. Sterile cloth drapes are then placed over your entire head (except for the eye to be operated on) and body to further minimize the chances of an infection occurring. There is no reason to feel suffocated under the drapes because a tube bringing fresh air or oxygen will be right next to you under the drapes.

Because of the delicate nature of the operation and the tiny area being operated on, your surgeon will use a microscope to do your surgery. The microscope magnifies and illuminates the tiny operating area in your eye. After the microscope is placed in position, your surgeon is ready to start the procedure.

32 Who will be in the operating room with me?

Your surgeon, the surgeon's assistant, and a nurse who takes care of the instruments. Other nurses will also be in the operating room to help with the various details of your surgery, and an anesthesiologist will be there in case more medication is needed.

33 How will I feel and what should I do during the operation?

You will feel comfortable during surgery. You may be awake or slightly drowsy and might hear some unfamiliar sounds. If there is something that you find uncomfortable, you will be able to tell your surgeon about it through the drapes over your head. He will then correct the problem. Your greatest contribution to the success of the surgery will be to hold still and remain quiet. If you need to sneeze or cough tell your surgeon before doing so.

34 How long will the surgery take?

This varies but usually takes from 45 minutes to an hour.

35 What type of anesthesia is best for me?

Basically, there are two types of anesthesia used for eye surgery. Your surgeon will decide which is best for you.

1 General Anesthesia:

In this type of anesthesia a sedative is injected into the intravenous tube connected to your arm. This will make you lose consciousness completely. While you are asleep, a tube is passed through your mouth into the trachea or windpipe, the passageway leading to the lungs. One end of this tube is connected to a machine from which a mixture of anesthetic gas and oxygen is pumped into your lungs by the anesthesiologist. Long operations such as retinal surgery are best done with general anesthesia. Also, since children find it difficult to hold still during surgery, general anesthesia is best for them. A disadvantage with general anesthesia is that it usually takes you several hours to become awake and alert after surgery. In addition, you may have a mild sore throat and perhaps nausea and vomiting. With this type of anesthesia, you will know nothing about what took place during surgery. However, given the discomfort, general anesthesia may not be a great advantage.

2 Local Anesthesia:

In this type of anesthesia, a sedative is injected through the intravenous tube connected to your arm. This will only make you drowsy. An anesthetic solution is then injected around your eye. The needle of the syringe containing the anesthetic may hurt a little but most patients don't find it painful because they are quite drowsy when the injection is being given. When local anesthesia is given, only the eye to be operated on and that side of the face is numb. During the operation, you will be a little drowsy but awake and calm and will feel no pain. Almost all types of eye surgery are done using local anesthesia. An advantage with local anesthesia is that right after surgery, you can sit up, eat, drink or take a walk. In addition, there is no nausea and vomiting. Most eye surgeons prefer to do cataract surgery using local anesthesia.

36 How will I feel immediately after surgery?

You may be a little drowsy and may not remember much about the operation or you may be quite awake and alert. This partially depends on the type of medication that was used to make you drowsy before the operation. After surgery, most patients are surprised at how easy the whole experience was.

37 What can I do immediately after surgery?

You may eat and drink, sit up in a chair, and also walk and go to the bathroom with assistance.

38 What will my eye look like right after surgery?

Your eyelids may be a little swollen, slightly droopy and a little discolored. In a few days, the lids will appear completely normal. The eye itself may be a little red for about a week or two. This redness will also clear completely.

39 Will cataract surgery in any way change the appearance of my eye?

After the eye heals, your friends and family, looking at your eye, will probably not be able to detect any change in its appearance.

40 Will there be stitches in my eye after surgery?

Yes. Regardless of the technique used to remove a cataract, the opening made by your surgeon to provide access into the eye is closed with stitches.

41 Will the stitches have to come out?

No. The stitches are made of a special material that does not require removal. Occasionally after your eye has healed, a stitch may become loose and produce a slight irritation of the eye. It can then be easily and painlessly removed in your doctor's office. Sometimes, a few weeks after surgery, your surgeon may cut some stitches to give the eye a better shape. This, too, is completely painless and is done in your doctor's office.

42 How long will it take my eye to heal?

About six weeks.

43 Will my vision be perfectly clear immediately after surgery?

No. In fact, your vision is usually cloudy for a few days to a few weeks after surgery. The reasons for this include inflammation within the eye caused by the surgery and the gradual healing of the opening in the eye which was made to remove the cataract.

44 How soon after surgery may I use the operated eye?

Right away. You may not be able to see clearly with the eye, but there is no harm in using it, for example, to read or watch television.

45 Will I need to use eyedrops after surgery?

Yes. Eyedrops which help reduce inflammation and prevent infection are used for about six weeks after surgery (see Figure 13).

46 Will I have to wear eyeglasses after surgery?

Even though an implant has been placed in the eye, eyeglasses are usually needed to help refine your vision and make it clear. The eyeglasses you may need will have thin lenses and will not be like the thick "coke bottle" glasses which people used to wear years ago when implants were not used. If you wear eyeglasses now, you will probably need to change the lens over the operated eye a few weeks after surgery.

47 What are some conditions that may exist in my eye before surgery which may prevent good vision afterwards although perfect cataract surgery is done?

Even after perfect cataract surgery, the eye is left with problems that were present before surgery.

Glaucoma is a condition where the pressure in the eye is higher than normal. If you have a cataract and glaucoma and have lost vision from both, removing the cataract

will only restore the vision you lost due to the cataract. The vision lost from glaucoma is permanent and will not be restored by cataract surgery.

Macular degeneration is an aging change in the retina which causes you to lose clear vision in the central part of your visual field. If you have severe macular degeneration and cataract, the improvement of vision after surgery may be minimal.

Diabetes can affect your retina and produce poor central vision if it affects the macula. Removal of a cataract will not eliminate this poor vision although the part of vision lost due to the cataract will be restored.

48 What are some of the possible complications of cataract surgery even though perfect surgery is done?

Infection is a serious complication which can significantly reduce vision after surgery. To help prevent this possibility, an antibiotic will be prescribed by your surgeon. Fortunately, such infections are very rare, occurring once in a thousand cases.

Hemorrhage or bleeding is a complication that ranges from mild to very serious. The worst type is called an expulsive hemorrhage and can leave the eye without vision. Fortunately, it is extremely rare and the chances of it occurring are less than one in five thousand.

A retinal detachment is a complication that occurs in 1 to 2% of people who have cataract surgery. If you are very nearsighted or myopic, you have a 4 to 5% chance of developing a retinal detachment after surgery. If you have had a previous retinal detachment which has been surgically reattached, there is an increased chance of the retina redetaching after cataract surgery. However, if the detachment is detected early, it can be reattached surgically with little loss in vision. It is important to remember that in some people, even if cataract surgery is not done, the retina can detach.

Macular edema or swelling of the macula with fluid can occur in about 20% of people who have cataract surgery. Fortunately, in almost all cases the fluid is absorbed by the eye and good vision returns. However, the time taken for this to happen is variable and may take from a few weeks to a year.

Glaucoma may occur after cataract surgery, but can be usually controlled with medicines.

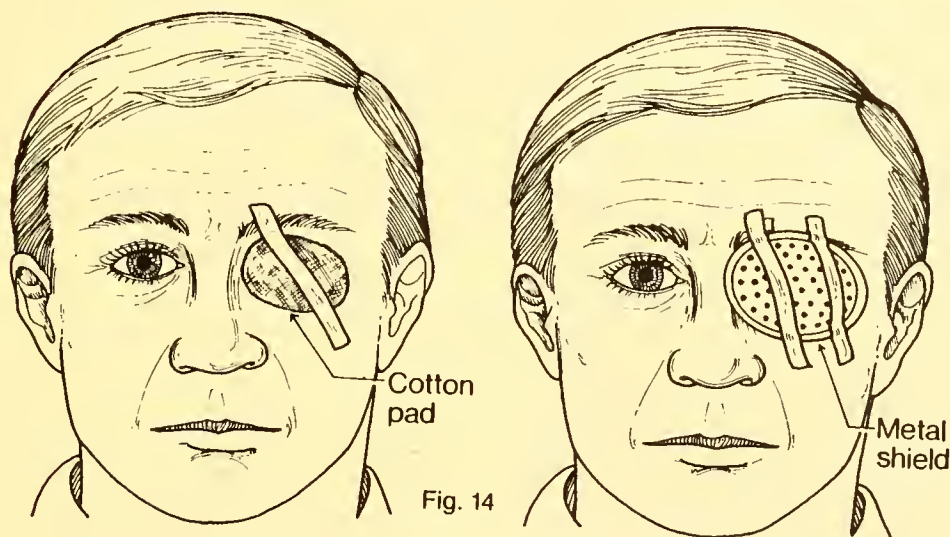
49 What will my eye feel like during the first few days after surgery?

It is normal for you to feel that you have a small cinder in the eye for a few days to a few weeks after surgery. As the tissues of the eye heal, this foreign body sensation will get less and less and finally disappear.

It is important to realize that the symptoms mentioned above may vary in degree. If the foreign body sensation or tearing is very mild, there is no reason to be concerned. However, if they are severe, you should bring it to the attention of your surgeon.

50 Do I have to keep my eye covered after surgery?

Yes. Immediately following surgery, a soft eye pad made of cotton and a firm metal eye shield are placed over the operated eye and secured with adhesive tape which sticks to the skin of the forehead and cheek (see Figure 14).



On the day following surgery, you may omit the soft eye pad and use only the metal eye shield. With the operated eye, you can then look through the holes in the shield. If the eye feels more comfortable with the lids closed, you can continue to use the eye pad in addition to the metal shield.

If you wear eyeglasses, you could omit the metal shield whenever you have your glasses on. However, when the glasses are taken off for any reason, the metal shield should be put back on at once. In other words, you should always have either your glasses on or the metal shield covering the eye at all times for about 6 weeks after surgery because it takes that long for the eye to heal completely.

The important point is that there should be something firm in front of your eye to provide protection against anything that might accidentally hit or push an it. You should remember that when you go to sleep at night or if you lie down to take an afternoon nap, the metal shield must be on the eye. You should also try to sleep either flat on your back or on the side of the unoperated eye to avoid pressing on the operated eye with your pillow. Having the metal shield on the operated eye will prevent damage to the eye even if you accidentally turn to the other side during sleep. These restrictions only apply for the first six weeks after surgery.

51 How often will I have to see my surgeon after the operation?

This varies slightly between patients, but generally, you will be examined three or four times during the first two months after your operation.

52 What about physical activity after surgery?

Due to advances in surgical technique, your physical activity after cataract surgery is not as restricted as it was in the past. There is no restriction on light activities such as walking. You should avoid lifting heavy objects, bending over so that your head is below the level of your waist, jogging or doing other vigorous physical exercise for about 6 weeks after surgery. You may pick up objects from the floor but kneel when doing so instead of bending over.

53 Can I rub or press my eye after cataract surgery?

No, not for at least six weeks.

54 Can I drink alcohol after surgery?

Yes. Alcohol in moderation is permitted after surgery.

55 When can I shower and wash my hair?

You may take a shower from the neck down right after surgery. It is important that soap and shampoo do not contact the operated eye for six weeks. This will help avoid irritation and infection of the eye. During this time, a family member, a friend, or your hair dresser can wash your hair while you are lying back, but you should wear your metal shield over the operated eye. Six weeks after surgery, you may take showers as you did before surgery.

56 When can I resume driving?

Since the vision in the unoperated eye varies from one patient to another, it is best to ask your surgeon what is appropriate for you.

57 When can I go back to work?

This depends on the type of work you do. If you have a desk job, you may return to work in about a week or two after surgery. If you have a job that involves lifting heavy objects, you should wait at least six weeks.

58 How much will the surgery cost?

The cost of cataract surgery varies from one part of the country to another and also between surgeons. Most insurance plans cover a portion of the cost. Ask your surgeon or his billing clerk what the fees are.

A Note from the Editor:

Doctors do talk to their patients. We have asked doctors in North Carolina to provide us with doctor-patient talk for our Features for Patients. Our first response came not from North Carolina, but from Massachusetts. Dr. Thomas has Tar Heel roots, however; he was raised in Charlotte, and he graduated from UNC medical school in 1973.

Paying Physicians

Eugene W. Linfors, M.D., editor

- *The question for December is: Plumbers and electricians are paid by the hour in a perfectly acceptable fashion. Should physicians be paid for their time in the same way? How should this be controlled?*

From Dr. James H. Black, an internist from Charlotte.

Physicians' compensation cannot easily be compared to the services of electricians, et al. There are many levels of occupational skill in our country. Society has demanded that the training of a physician must produce one of the top skill levels of the many professions. Numerous attempts have been made to compute the physician's charges into an hourly schedule. The final fee charged represents the culmination of many years of competitive education and training and reflects the complexity of the specific medical problem that has been treated. An hourly fee would not justify the varying amounts of both cognitive and technical skill required to evaluate and treat the wide variety of problems facing today's physician.

I believe in the fee-for-service system which must be combined with unrestrained patterns of competition and a genuine interest in cost effectiveness. This system has played a major role in forging the highest quality of medical care now available in the world.

The increase in the overall cost of health care has been directly related to the rapid advancement of scientific technology and the resulting complex instruments that significantly improve the physician's ability to diagnose and treat.

Patients should be prepared to pay a reasonable fee for this quality of medical care. The physician's responsibility is to maintain this level of care and to let his fees reflect the principles of fairness and honesty.

From Dr. Malcolm Fleishman, an internist from Fayetteville.

Physicians should not be paid for their time in the same way as plumbers and electricians. Patients react differently to the same diseases and so do their families. The degree of difficulty and time spent thinking about the patient when not in his or her physical presence is always a factor. Charges should be based on time and degree of difficulty. The concept of usual and customary fees to determine what charges most physicians set for cognitive skills and specific procedures is a useful one. If fees are considerably above the usual and customary, then the patient should have recourse to mediation committees of hospital staffs or medical societies to arbitrate differences.

From Dr. E. Rodney Hornbake, an internist from New Bern.

In fact plumbers and electricians are *not* paid by the hour. It is true that certain skilled laborers earn an hourly wage,

but the people who are most analogous to physicians do not. Those who resemble physicians in their work are the electrical and plumbing contractors.

Consider the similarities. The contractor must hire and train those who work for him. He must accept responsibility for their work. He must bill for their services and be certain that they are paid. The contractor is licensed by the state after passing a certifying examination. A contractor whose failure to adequately perform results in injury to others may be sued for damages with subsequent harm to his reputation.

What determines the earnings of the electrical or plumbing contractor? The answer is that market forces control his earnings. The people who have cash to pay and bid for his services in the market place will determine the value placed upon his services. These are precisely the forces that determined what physicians earned before the equation was complicated by the addition of prepayment variables early in this century. The physicians who enjoyed the best reputations were in greatest demand and commanded the highest fees.

The shortcoming of this system is obvious — those without cash tend not to receive the care that they need. However, the great strengths of this system should not be overlooked. I propose that all prepayment schemes be made illegal. Only true insurance against catastrophic expenses should be allowed. Catastrophic might be defined as expenses over ten percent of one's annual income. This catastrophic insurance coverage would have to be universal and mandatory in the same way liability insurance is mandatory for drivers.

Under this system total costs would undoubtedly drop, the federal government's solvency would become more likely and we would all be rid of the nitwits trying to plan our destinies. Most importantly all of us, physicians and consumers alike, would regain something very precious — our freedom.

From Dr. Jerome Ruskin, a cardiologist from Greensboro.

Because of the ever increasing percentage of the Gross National Product devoted to health care, compensation for physicians' services has been subjected to much critical analysis in the last decade. One factor cited in a Health Care Financing Agency (HCFA) study has been the growth in real services per visit or per day (intensity). Increased intensity of services, due in part to better access to quality

medical care, but primarily a function of technology-intensive diagnostic services, is seen as a major contributor to the rise in health care costs. Spurred on by the massive federal budget deficit, Congress and the Administration have already implemented cost cutting measures, including DRGs and the physician's fee freeze. Industry and such insurance programs as HMOs and PPOs have attempted to limit health care costs by other means.

One of the criticisms of the current methodology of payment for physicians' services, based on UCRs, is that it rewards physicians who order (and who may perform) high technology procedures while penalizing those who practice high quality but conservative medicine.

It is entirely feasible that a new Relative Value Scale (RVS) may be developed upon which physician reimbursement will be based. The American Society of Internal Medicine has advocated a change from the charge-based system, which is a reflection of present physicians' charges, to a "resource cost" approach. Factors to be considered include the time spent by a physician in performing a procedure or in an office visit, the complexity of the service rendered (the intensity of the physical and mental effort involved, including the risk of intraoperative complications, the diagnostic skills and clinical judgments required to choose appropriate procedures, and the technical skills required to perform the procedure), the physician's investment in professional training and the overhead expenses of physicians' practices. (Hsiao and Stason, paraphrased from the ASIM "white paper" on an alternative RVS based on resource costs.)

In response, then, to the question, my answer is "Yes, partly." I believe a resource cost-based RVS for physicians' services, of which time is but one factor, will help reward the conservative, cost conscious but effective physician, and will not interfere with the application of high technology services and procedures when indicated, while at the same time helping curb the rate of rise of the nation's health care costs. Of interest, HCFA has recently awarded a contract to Harvard University, with the AMA as a subcontractor, to construct such a cost-based RVS.

From Dr. Joseph D. Russell, an internist from Wilson.

The question of an hourly rate for physicians' services is a question which often comes up but leaves those in the medical profession with an immediate, emotional, "No, it just wouldn't work." Why wouldn't it? We assume it works well for plumbers and electricians. How can we defend a negative response to this question?

Basically plumbers and electricians figure the cost of a job based on materials, equipment, labor, overhead, and profit. Materials costs may vary according to the size of the job, specifications, and competition among manufacturers or distributors. The equipment required to complete a certain job also may affect cost, especially if amortized over a period of time, the number of uses, and depreciation.

Labor for a given job may also vary according to the availability of trained electricians or plumbers in the area or community. These rates might also vary according to the time of day, i.e., weekends, holidays, etc., and the number and type of personnel required on a particular job and their respective wages.

Overhead is a fixed cost which may vary according to fixed operating and support services and the volume of services provided by the business, and its physical plant requirements.

Finally profit is calculated based on an acceptable scale for the industry and competition within the marketplace.

Since physicians traditionally have existed as owners of their business rather than employees, all of the above factors would need to be addressed in order to come up with an acceptable hourly rate. Using current cost estimates for materials, equipment, overhead, labor, and profit, we would assume that an hourly rate could be calculated for physicians' services which would be defensible. Guarantees of outcome would be difficult to project and would then create the additional problem of how long services would be maintained, especially in cases of chronic disease, variable responses to therapy, and frequency of follow-up for maintenance or surveillance of therapy or disease.

The initiation of an hourly rate for reimbursement would likely lead to collective bargaining and possible unionization within the medical profession. The potential consequences of such actions would no doubt have extreme negative effects on the doctor-patient relationship not to mention the overall well-being of this nation and its citizens. Controls would most likely fall under the jurisdiction of the Federal Trade Commission and/or the Fair Labor Standards Act. Questions regarding antitrust as well as overtime compensation would be matched by problems concerning continuity of care and payment for cognitive services.

So, I feel reimbursement of physicians by the hour is opening Pandora's box and would use the above arguments to defend the answer, "No, it just wouldn't work."

From Dr. Phillip A. Sellers, an internist from Hendersonville.

Two basic issues related to physician reimbursement are raised by this question. (1) Should reimbursement be based solely on time spent and (2) Should physicians be organized as labor unions to obtain the advantages of unionization?

Time alone is inadequate to describe physicians' services. Rigid application of time-based guidelines for reimbursement should be opposed. However, time should be a large and important element of any reimbursement system. Several other factors — such as complexity, overhead, training of physician and risk — all need to be considered in reimbursement formulas.

Though physician income is dropping and reimbursement for physicians' services by third parties — both governmental and corporate — is decreasing, the medical profession at present generally still has its autonomy. The physician's relationship is still primarily with the patient, not with the third-party payor. We don't need to be employees with a "John L. Lewis" leader; nor do we need to be able to strike. We do need to maintain our professional relationship with our patients; this relationship, according to recent words of Dr. James Todd of the AMA, includes concern, competence, communication, conscience — with moral responsibility — and compassion.

There is no question that physician reimbursement sys-

tems are going to change more in the next one to two years than they have in the last 20-30 years, when "usual, customary and reasonable (UCR)" insurance reimbursement systems were put in place. There is no question that there is a need for change. For example, the Medicare physician reimbursement system is far too complex and complicated. It is an administrative nightmare and over the years has built up many unfair inequities for the physicians as well as for patients.

A new system of reimbursement needs to be developed.

The basic ingredients should include an indemnity fee schedule based on a relative value scale of all physician services. The physician could accept this as full payment. The other necessary feature of the system should give the physician the option to "balance bill." In other words, the physician would be able to bill more than the fee schedule allows.

No, I would not like to be paid as a union electrician is paid.

• EDITOR'S NOTE:

Once again I thank all of our respondents for their opinions. I know it is difficult to find time for something extra when you are already very busy.

If I am reading these opinions correctly, time spent on the patient's problem is only one of several important parts of the reimbursement formula. A simple hourly rate for physicians might be inflexible and certainly would change the doctor-patient relationship.

A broader but related question for a later issue of the Forum is, **Will fee for service survive the pressure from alternative health care delivery systems, e.g., HMOs, PPOs, IPAs? Should it?** I would appreciate your opinions.

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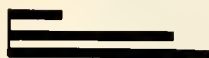
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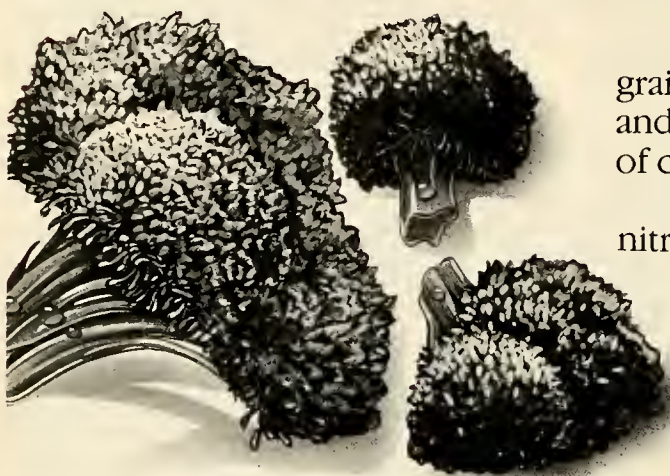
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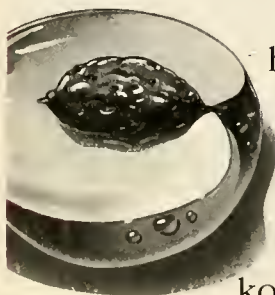
Fruits, vegetables, and whole-grain cereals such as oatmeal, bran and wheat may help lower the risk of colorectal cancer.

Foods high in fats, salt- or nitrite-cured foods like ham, and



There is evidence that diet and cancer are related. Some foods may promote cancer, while others may protect you from it.

Foods related to lowering the risk of cancer of the larynx and esophagus all have high amounts of carotene, a form of Vitamin A which is in cantaloupes, peaches, broccoli, spinach, all dark green leafy vegetables, sweet potatoes, carrots, pumpkin, winter squash and tomatoes, citrus fruits and brussels sprouts.



Foods that may help reduce the risk of gastrointestinal and respiratory tract cancer are cabbage, broccoli, brussels sprouts, kohlrabi, cauliflower.

fish and types of sausages smoked by traditional methods should be eaten in moderation.

Be moderate in consumption of alcohol also.

A good rule of thumb is cut down on fat and don't be fat. Weight reduction may lower cancer risk. Our 12- year study of nearly a million Americans uncovered high cancer risks particularly among people 40% or more overweight.

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Aspirin and Reye Syndrome: A Saga Unfolds

Floyd W. Denny, M.D.

- *While the final answer has yet to be given, prudence dictates that aspirin-containing medications be avoided in children with certain illnesses.*

REYE syndrome is a rare, acute but serious disorder of childhood in which vomiting and coma develop three or four days after a prodromal viral illness. The reported estimated annual incidence of the syndrome has varied from <1 to 6 per 100,000 children under 18 years of age.^{1, 2} The death-to-case ratio has decreased in the past few years and now is almost 10% at most teaching hospitals.³ The etiology is unknown but the prodromal viral illness usually is a respiratory tract infection, typically influenza B in children 10 to 14 years old; in children aged 5 to 9 varicella is more common; and in younger age groups the antecedent illness may be diarrhea. The Reye syndrome is manifested clinically as an encephalopathy and chemically as hepatopathology.

A number of studies have implicated salicylates as a causal factor in the Reye syndrome. Four case-control studies published between 1980 and 1982 from Arizona, Ohio and Michigan have suggested that there is an association between the ingestion of aspirin during the prodromal illness and the subsequent development of Reye syndrome.⁴⁻⁸ Herein begins a saga that is continuing to unfold.

In 1980 the Centers for Disease Control (CDC) conducted a review of the reported studies and published a summary of them; CDC advised parents to use caution when administering salicylates to children with viral illnesses, particularly chicken pox and influenza-like illnesses.⁶ In 1981, the National Institutes of Health held a consensus development conference on the diagnosis and treatment of Reye syndrome; the consensus panel recommended prudence in the administration of salicylates to children with influenza and varicella.⁹ Also in 1981 the CDC convened a working group of consultants, including representatives from the American Academy of Pediatrics and its Committee on Infectious Diseases and Drugs to review the relationship between Reye syndrome and salicylates that had been reported in the four case-control studies. These consultants concluded "that it was unlikely for the limitations of the studies, either singly or in combination, to explain totally the strength and consistency of the observed association between Reye syndrome and

salicylates."⁶ There then followed meetings between representatives from the CDC, the Food and Drug Administration and drug manufacturers which resulted in 1982 in the issuance of a Surgeon General's Advisory on the Use of Salicylates and Reye syndrome, which was published in the Morbidity and Mortality Weekly Report.¹⁰ The Advisory concluded: "As a result of this entire review process, the Surgeon General advises against the use of salicylates and salicylate containing medications for children with influenza and chickenpox." The same month that this was published the American Academy of Pediatrics Committee on Infectious Diseases and Drugs published a statement advising that the use of salicylates should be avoided for children suffering from influenza or chickenpox.¹¹ With this impetus, the FDA began the process to change labeling of salicylate-containing products and issued by the end of the year an advance notice of proposed rule making.¹²

There then followed considerable disagreement among federal agencies, pediatricians and aspirin manufacturers about the weight of evidence in the four case-control studies. For example, in November 1982, the Executive Committee of the American Academy of Pediatrics issued a statement that "Labeling should be delayed until more conclusive evidence of the association of aspirin administration and the Reye syndrome is shown by further investigation."¹³ Until this day there are no warning labels on aspirin containers. This widespread hassle and uncertainty was so great that the Secretary of the Department of Health and Human Services appointed a Public Health Service Task Force comprised of members of the National Institutes of Health, Food and Drug Administration, and CDC to design and implement a new epidemiologic study concerning the nature of the possible relationship between Reye syndrome and medications.

A pilot study was conducted between February and May 1984 to determine the study feasibility and to establish methodology. Although this was a pilot study and definitive answers were not anticipated, the results were so astonishing that they were quickly called to medical attention in the Morbidity and Mortality Weekly Report.¹⁴ The study included 29 Reye syndrome cases and four control groups containing a total of 143 children. Ninety-seven percent of the case children were reported to have received salicylates during a respiratory or chickenpox illness before a clinical-

From the Program for Health Promotion and Disease Prevention, UNC School of Medicine, Chapel Hill 27514.

ly defined onset of Reye syndrome compared with 28-59% of the control groups at any time during their matched illnesses. The risk defined in this pilot study was comparable to or greater than that determined in the previously reported studies. Following a review of these data, an Institute of Medicine/National Academy of Sciences Review Committee recommended:

1. The PHS Task Force should proceed with the full study.
2. Results of the pilot study should be released promptly to the public and to scientists for review and analysis.
3. Analysis of the pilot study data reveals a strong association between the Reye syndrome and the use of aspirin; considering data from previous studies also show an association of use of aspirin and Reye syndrome, the Committee recommends that steps should be taken to protect the public health before the full study is completed.
4. Although it is impossible to know with certainty whether the release of the pilot study data will harm the full study, the Committee suspects the effects of the attendant publicity will be no more damaging than the current climate of public opinion, which appears not to have impeded conduct of the pilot study.

In concluding its presentation in the Morbidity and Mortality Weekly Report, the editors state, "A report of the pilot study is currently being prepared for publication. In view of these preliminary findings, physicians, parents, or older children who self-medicate should continue to be advised of the probable increased risk of Reye syndrome associated with the use of salicylates for children, including teenagers, with influenza-like illness or chickenpox."

Thus, the saga of the association between aspirin and Reye syndrome continues and may be far from over. Great controversy rages over the adequacy of all of the

epidemiological studies reported up to this time. The interested reader is advised to observe carefully future publications and news releases that might clarify this issue. It is of interest to note that fewer cases of Reye syndrome were reported in 1985 than in recent years (CDC, personal communication); the number of cases occurring now may preclude further epidemiological studies. The cause for this is unknown. Until a final answer is obtained it would seem prudent for physicians, parents and children alike to be cautious in the use of aspirin in varicella and viral infections of the respiratory and gastrointestinal tracts.

References

1. Sullivan-Bolyai JZ, Corey L. Epidemiology of Reye syndrome. *Epidem Rev* 1981;3:1-25.
2. Lichtenstein PK, Heukj JE, Oaugherty CC, et al. Grade I Reye's syndrome: a frequent cause of vomiting and liver dysfunction following varicella and upper-respiratory tract infection. *N Engl J Med* 1983;309:133-9.
3. Devivo DC. How common is Reye's syndrome? *N Engl J Med* 1983;309:179-81.
4. Starko KM, Ray GC, Dominguez LB, et al. Reye syndrome and salicylate use. *Pediatrics* 1980;66:859-64.
5. Centers for Disease Control. Reye syndrome—Ohio, Michigan. *Morbidity and Mortality Weekly Report* 1980;29:532, 537-9.
6. Centers for Disease Control. National surveillance for Reye syndrome, 1981: Update, Reye syndrome and salicylate use. *Morbidity and Mortality Weekly Report* 1982;31:53-6.
7. Waldman RS, Hall WN, McGee H, et al. Aspirin as a risk factor in Reye's syndrome. *JAMA* 1982;247:3089-94.
8. Halpin TJ, Holtzauer FJ, Campbell RJ, et al. Reye's syndrome and medication use. *JAMA* 1982;248:687-91.
9. National Institutes of Health. The diagnosis and treatment of Reye's syndrome. Consensus development conference summary. Volume 4, number 1. March 1981.
10. Centers for Disease Control. Surgeon General's advisory on the use of salicylates and Reye syndrome. *Morbidity and Mortality Weekly Report* 1982;31:289-90.
11. Committee on Infectious Diseases. Aspirin and Reye syndrome. *Pediatrics* 1982;69:810-12.
12. Department of Health and Human Services, Food and Drug Administration. Labeling for salicylate-containing drug products. *Federal Register* December 28, 1982;47:57886-901.
13. Statement by Executive Committee, American Academy of Pediatrics, dated November 8, 1982.
14. Centers for Disease Control. Reye syndrome—United States, 1984. *Morbidity and Mortality Weekly Report* 1985;34:13-6.

Confused About Advertising?

Thomas V. Bennett

- *Advertising by doctors is increasing. The North Carolina Medical Journal can reject or accept advertising as it wishes. The North Carolina Medical Society cannot prevent ads from being placed in any of the public media — newspapers, magazines, radio, television. This subject has recently been covered in the Bulletin of the North Carolina Medical Society. It is being republished in the Journal because many persons missed it. The Editor believes that the first rule of teaching is repetition.*

PHYSICIAN advertising used to consist of a name on a sign and a listing in the telephone directory. Physicians built their practices through referrals from colleagues or word-of-mouth "advertising" by patients. It was considered unprofessional and unethical to do more.

But things have changed.

In the words of the North Carolina Medical Society's legal counsel, Julian D. Bobbitt, Jr., "The Federal Trade Commission continues to take an aggressive position regarding any limitations on professional advertising." The American Medical Association is operating under an FTC injunction that limits the restrictions that a professional group can place on advertising.

Some physicians want to advertise; others strongly disapprove of it. To clear the air and ease the controversy, the NCMS House of Delegates has directed that the Society report to members on the laws that define the limits of physician advertising.

The current status of the law is reflected in section 5.01 of the 1984 edition of *Current Opinions of the Judicial Council of the American Medical Association*. An AMA spokesman summarized the section by saying, "Essentially, a physician can advertise as much as he wants, as often as he wants, through any medium he wants, as long as he isn't deceptive or misleading."

Section 5.01 offers some noteworthy specifics:

"There are no restrictions on advertising by physicians except those that can be specifically justified to protect the public from deceptive practices. A physician may publicize himself as a physician through any commercial publicity or other form of public communication (including any newspaper, magazine, telephone directory, radio, television or other advertising) provided that the communication shall not be misleading because of the omission of necessary material information, shall not contain any false or misleading statement, or shall not otherwise operate to deceive.

"The form of communication should be designed to communicate the information contained therein to the pub-

lic in a direct, dignified and readily comprehensible manner. Aggressive, high pressure advertising and publicity may create unjustified medical expectations. Any advertisement or publicity, regardless of format or content should be true and not misleading.

"The communication may include: (a) the educational background of the physician; (b) the basis on which fees are determined (including charges for specific services); (c) available credit or other methods of payment; and (d) other information about the physician which a reasonable person might regard as relevant in determining whether to seek the physician's services.

"Testimonials of patients, however, as to the physician's skill or the quality of his professional services should not be publicized. Statements relating to the quality of medical services are extremely difficult, if not impossible, to verify or measure by objective standards. Claims regarding experience, competence and the quality of the physician's services may be made if they can be factually supported and if they do not imply that he has an exclusive and unique skill or remedy. A statement that a physician has cured or successfully treated a large number of cases involving a particular serious ailment may imply a certainty of result and create unjustified and misleading expectations in prospective patients.

"Consistent with Federal regulatory standards which apply to commercial advertising, a physician who is considering the placement of an advertisement or publicity release, whether in print, radio or television, should determine in advance that his communication or message is explicitly and implicitly truthful and not misleading. These standards require the advertiser to have a reasonable basis for claims before they are used in advertising. The reasonable basis must be established by those facts known to the advertiser, and those which a reasonable, prudent advertiser should have discovered.

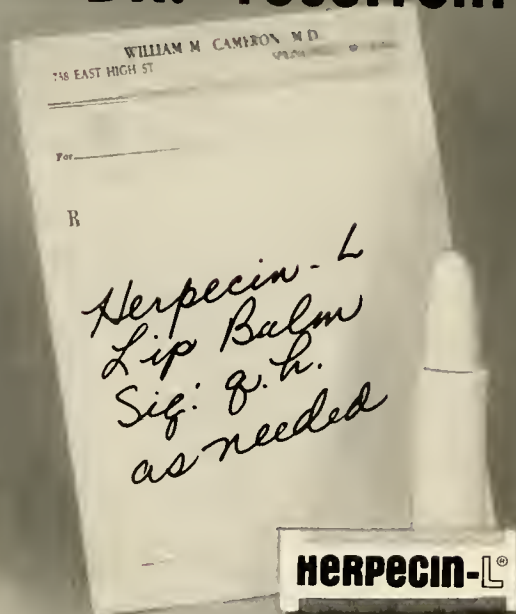
"As used herein, references to a 'physician' apply also to information relating to the physician's group, partners or associates. Any communication or message within the scope of this opinion should include the name of at least one physician responsible for its content.

"Nothing in any opinion of the Judicial Council is in-

tended or shall be construed to discourage or to limit advertising and representations which are not false or deceptive within the meaning of Section 5 of the Federal Trade Commission Act."

The law is permissive. It opens the door for professional advertising, and Mr. Bobbitt noted that attempts to limit a physician's advertising create a legal risk.

Dx: recurrent herpes labialis



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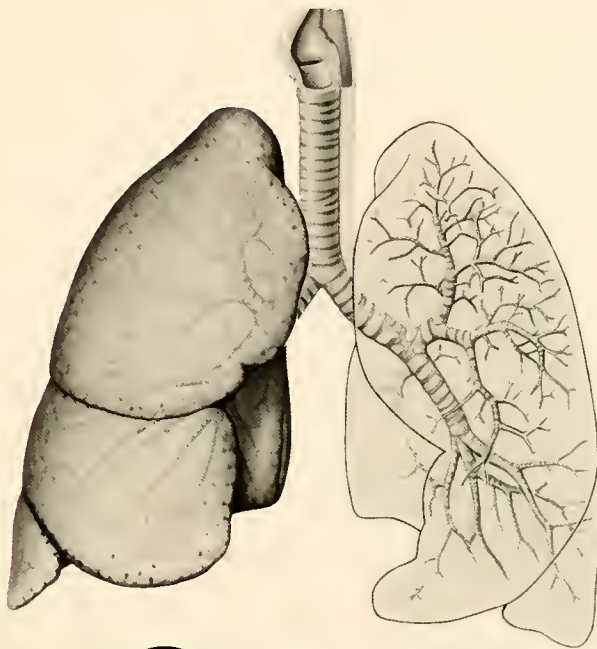
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(ampicillin-susceptible) (ampicillin-resistant)

Brief Summary Consult the package literature for prescribing information

Indications and Usage. Cecilor® (cefacior, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections: including pneumonia caused by *Streptococcus pneumoniae* (pneumococcus), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cecilor.

Contraindication. Cecilor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings. IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS. ANY THERE ARE REACTIONS IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS TO BOTH DRUG CLASSES.

Antibiotics including Cecilor should be administered cautiously to any patient who has demonstrated some form of allergy particularly to drugs.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins); therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, manage-

ment should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out.

Precautions. **General Precautions.** If an allergic reaction to Cecilor® (cefacior, Lilly) occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids. Prolonged use of Cecilor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross matching procedures when antioglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Cecilor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cecilor, a false positive reaction for glucose in the urine may occur. This has been observed with Benedol's and Fehling's solutions and also with Clinette's tablets but not with Tes-tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy. **Pregnancy Category B.** Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in ferrets given three times the maximum

human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Cecilor® (cefacior, Lilly). There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers. Small amounts of Cecilor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.16, 0.20, 0.21, and 0.16 mg/ml at two, three, four, and five hours respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Cecilor is administered to a nursing woman.

Usage in Children. Safety and effectiveness of this product for use in infants less than one month of age have not been established.

Adverse Reactions. Adverse effects considered related to therapy with Cecilor are uncommon and are listed below:

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 10). Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely.

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum sickness-like reactions (systemic multiforme or the above skin manifestations accompanied by arthritis/arthralgia and frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cecilor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have

occurred in patients with a history of penicillin allergy. Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain. Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician:

Hepatic. Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic. Transient fluctuations in leukocyte count predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal. Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782P]

Note. Cecilor® (cefacior, Lilly) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

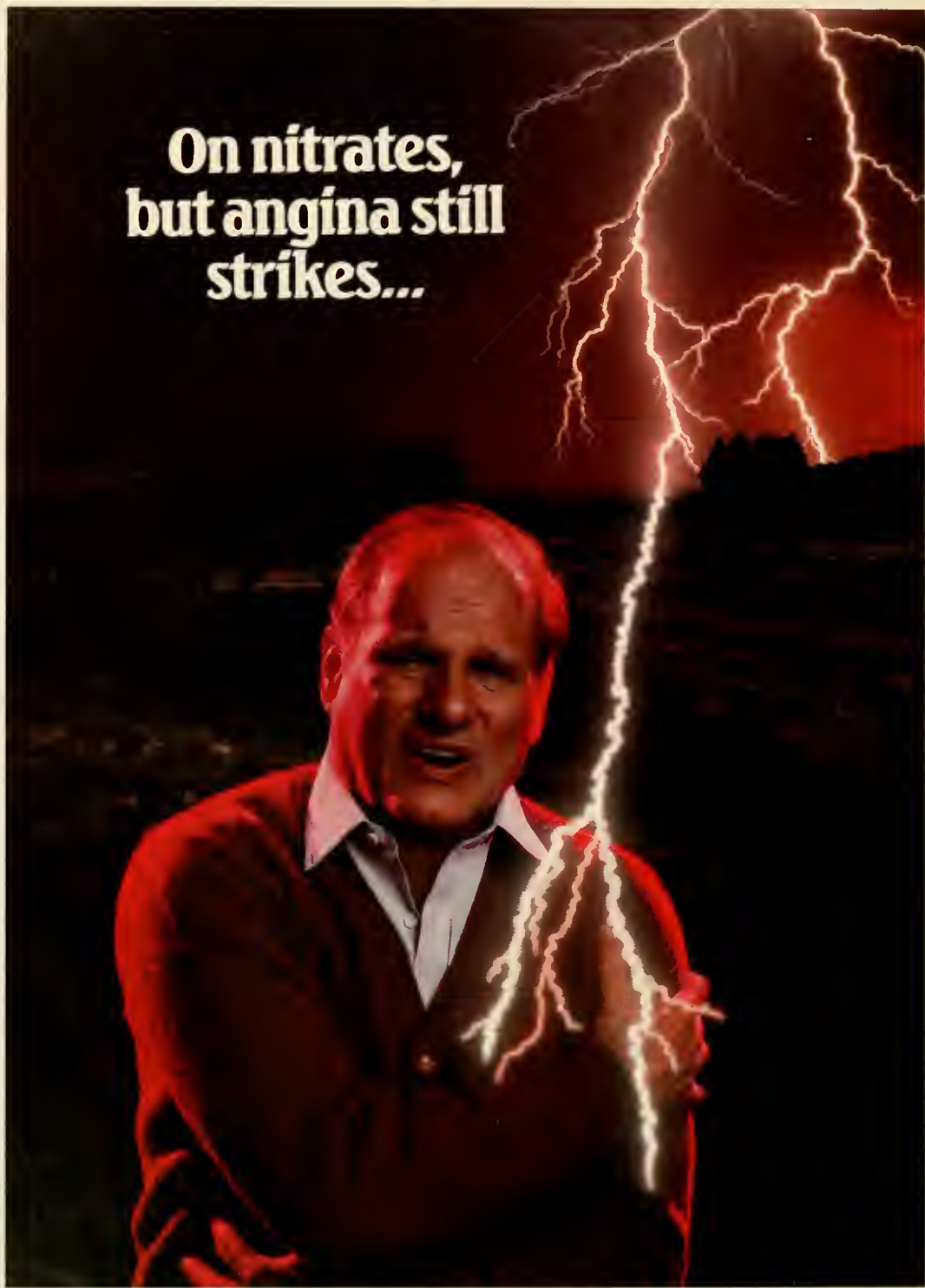
Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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but angina still
strikes...**



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add Isoptin instead of a beta blocker.

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With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

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So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.



**ISOPTIN. Added
antianginal protection
without beta-blocker
side effects.**

ISOPTIN® (verapamil HCl/Knoll)

80 mg and 120 mg scored, film-coated tablets

Contraindications: Severe left ventricular dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker (See *Precautions*.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under *Precautions*.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment, however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g., WP-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (IHSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk, therefore, nursing should be discontinued during ISOPTIN use.

Adverse Reactions: Hypotension (2.9%), peripheral edema (1.7%), AV block 3rd degree (0.8%), bradycardia HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported. (See *Warnings*.) The following reactions, observed in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984

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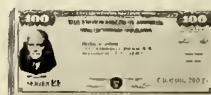
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The Silent Ectopic Pregnancy

Linda M. Frazier, M.D.

• A "benign" abdomen does not rule out ectopic pregnancy

ECTOPIC pregnancy is a life-threatening condition affecting approximately 52,000 women each year in the United States.¹ Only a minority of patients present with the classic textbook picture of a missed menstrual period, sudden lower abdominal pain, exquisite adnexal tenderness and shock. We recently cared for a patient whose ectopic pregnancy presented with relatively minor findings.

This 33-year-old woman had had two normal vaginal deliveries. She had a Progestasert intrauterine contraceptive device (IUD); there was no history of salpingitis, pelvic inflammatory disease or endometriosis. Menstrual periods were regular.

On the day before she was seen, her menstrual period began, on time, but she developed dull right lower quadrant pain; this type of pain was unusual for her. She had two watery bowel movements but no cramps, fever, nausea or vomiting. There was no breast pain or fatigue. She did not appear ill. Her temperature was 36.5° C; there was right lower quadrant tenderness with equivocal rebound accentuation; the IUD string was visible; there was mild tenderness on cervical manipulation; there was no adnexal mass or tenderness. Hemoglobin, which had been 14.5 g several months earlier, was 11.6 g; mean corpuscular volume was 95. White blood cell count was 6700 with 76% neutrophils, 10% lymphocytes, 7% monocytes and 1 lymphocyte variant.

A diagnosis of appendicitis was considered so the patient was asked to return for a follow-up evaluation the next day. By then her menstrual period had stopped prematurely and she felt much better. A serum human chorionic gonadotropin (hCG), beta-subunit, was ordered because of the possibility of an ectopic pregnancy. Temperature was 37.5° C; her abdomen was only minimally tender. The serum specimen was misplaced by the laboratory but the test was not repeated because she was improving and there was no adnexal tenderness. Two days later she was feeling well. Two days after that, the serum specimen was found. The pregnancy test was positive.

When contacted later that day, the patient said she felt completely well, but that her period had begun again. That evening a pelvic ultrasound showed no evidence of intrauterine pregnancy; the oviducts could not be visualized because of a moderate amount of pelvic fluid. She consented, a little reluctantly, to hospital admission. Pelvic examination was again unremarkable. Quantitative hCG levels progressively increased to 3300 mIU/mL (figure 1).

Differential diagnosis included ectopic pregnancy and abortion of an intrauterine pregnancy. Dilation and curettage were negative; laparoscopy showed a 2.5 cm right infundibular ectopic pregnancy (figure 2). A distal salpingectomy was performed. Approximately 300 cc of intraperitoneal blood was found. The patient recovered without incident.

This patient's initial right lower quadrant pain was probably caused by intraperitoneal bleeding from her ectopic pregnancy. When the bleeding stopped peritoneal inflammation improved and her pain resolved. The infundibular location of the conceptus allowed it to expand without causing as much pain as may have occurred in the narrower ampullary or isthmic oviduct.

Ectopic pregnancies present with subacute or atypical manifestations in up to 85% of cases.² Delay in diagnosis increases the risk of tubal rupture and death by exsanguination. In a series of women successfully treated for ectopic pregnancy, only four of 26 were correctly diagnosed on initial presentation.³ In another series, there was an average delay of three days between the patient's first contact with a physician and hospital admission.⁴ Fortunately, the maternal death rate from ectopic pregnancy has been steadily decreasing, reaching a rate of 0.9 deaths per 1000 cases in

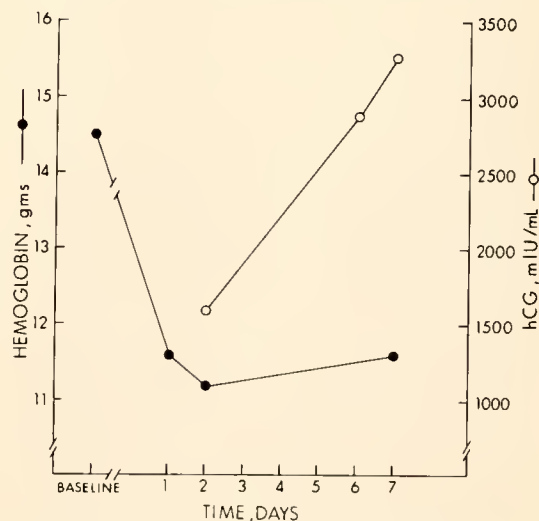


Figure 1. Confirmation of viable trophoblastic tissue by rising human chorionic gonadotropin (hCG) levels in this patient. Hemoglobin values fell, probably from her intrapelvic bleeding.

From the Department of Medicine, Duke University Medical Center, Durham 27710.

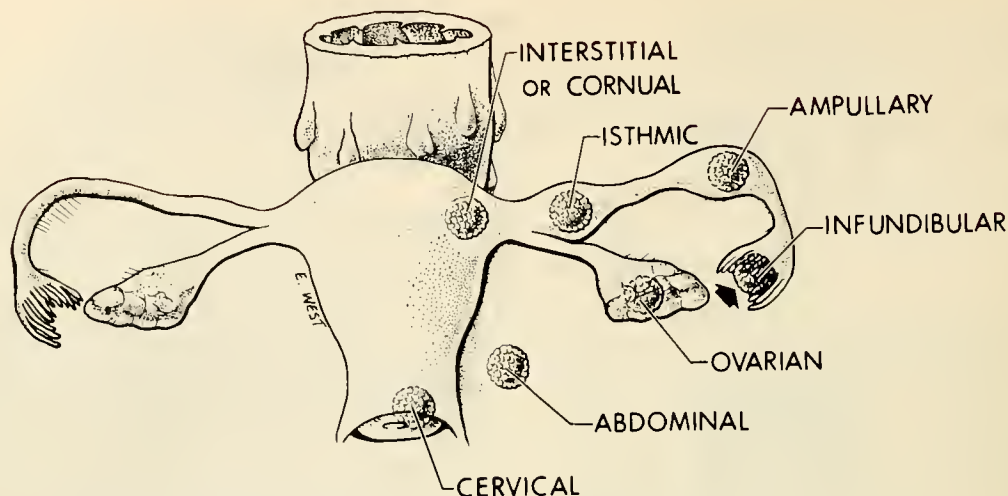


Figure 2. Implantation sites in ectopic pregnancy. Arrow indicates pregnancy site in this patient.

1980.¹ This decline may largely be due to earlier detection resulting from improved diagnostic techniques. Even so, one recent report estimated that 75% of maternal deaths could be prevented by prompt treatment.⁴

Ectopic pregnancies commonly present with mild or subtle symptoms so the physician must maintain a high index of suspicion. Breast soreness, nausea and other symptoms of early pregnancy may be absent. Regular menses may persist in 20-40% of patients,^{2, 3} due to the inability of the abnormal embryo to stimulate the hormonal changes necessary to prevent endometrial shedding.

Abdominal pain is nearly always present in ectopic pregnancy, but the pain is unilateral in only 33%.⁵ Our patient was unusual because she had minimal adnexal tenderness and because her abdominal pain resolved.

It may be difficult to differentiate between ectopic and intrauterine pregnancy. In one series, abdominal pain and amenorrhea were found in 81% of women who were found to have intrauterine pregnancies.³

Ectopic pregnancies have been reported in patients using every form of contraception.⁶ Patients using IUDs are not at greater risk for ectopic pregnancy than patients using no form of contraception,⁶ but use of an IUD does not prevent ectopic pregnancies either. Patients who have had tubal ligations or who use barrier methods have the lowest ectopic pregnancy rates. Patients using contraceptives, which prevent ovulation, have rates similar to patients using barrier methods.⁶

The cause of ectopic implantations remains poorly understood. A history of pelvic inflammatory disease is an important risk factor because tubal patency and peristalsis may be impaired. A history of pelvic infection or microscopic evidence of prior infection is present in approximately 20-40% of patients with ectopic pregnancy.^{2, 6} Tubal blockage is not the only cause of ectopic implantation because the embryo is often found in the oviduct contralateral to the side where ovulation occurred.⁶ Other etiologic hypotheses include delayed ovulation, retrograde menstrual flow and abnormal hormonal mechanisms.^{2, 6} In

approximately one third of ectopic pregnancies, the karyotype of the zygote is abnormal, suggesting that ectopic implantation may also be caused by non-maternal factors.

Ectopic pregnancy should be suspected in women of child bearing age who develop pelvic pain. The present case shows that lack of an adnexal mass or tenderness should not dissuade the physician from considering the diagnosis. Use of serum hCG testing in conjunction with pelvic ultrasonography accurately predicts ectopic pregnancy in 93% of cases.³ The hCG may be negative if the zygote has degenerated or if the laboratory threshold for a positive hCG is too high. If this occurs, quantitative hCG tests and laparoscopy generally make the diagnosis. Some authors recommend the use of culdocentesis but this is a painful procedure which is nondiagnostic in 23% of patients with surgically-proven ectopic pregnancies.³

In our patient, the diagnosis of ectopic pregnancy was suspected on the basis of unilateral abdominal pain and menstrual irregularity. Her course was unusual because the pelvic tenderness resolved, but the diagnosis was confirmed by rising quantitative hCG values and laparoscopy. Subacute manifestations are common in ectopic pregnancy, so the diagnosis should be suspected on the basis of the history even when the abdominal examination is "silent."

Acknowledgment

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References

1. Leads from the MMWR. Ectopic pregnancies — United States, 1970-80. JAMA 1984;251:2327.
2. Green TH. Gynecology: essentials of clinical practice, 3rd ed. Boston: Little, Brown and Company, 1977:285-96.
3. Weckstein LN, Boucher AR, Tucker H, Gibson D, Rettenmaier MA. Accurate diagnosis of early ectopic pregnancy. Obstet Gynecol 1985;65:393-7.
4. Schneider J, Berger CJ, Cattel C. Maternal mortality due to ectopic pregnancy: a review of 102 deaths. Obstet Gynecol 1977;49:557-61.
5. Brenner PF, Subir R, Mishell DR. Ectopic pregnancy: a study of 300 consecutive surgically treated cases. JAMA 1980;243:673-6.
6. Barnes AB, Wennberg CN, Barnes BA. Ectopic pregnancy: incidence and review of determinant factors. Obstet Gynecol Survey 1983;38:345-56.

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IN STATE

December 18

New Uses of Calcium Channel Blockers

Place: Sanford

Info: R. S. Cline, M.D., Central Carolina Hospital, 1135 Carthage Street, Sanford 27330. 919/774-6518

January 10-11, 1986

Advanced Cardiac Life Support

Place: Chapel Hill

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

January 30, 1986

Controversies in Transplantation

Place: Chapel Hill

Credit: 7 hours Category I AMA

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

February 12

Affective Disorders: Diagnosis and Treatment

Place: Greenville

Credit: 3.5 hours Category I AMA

Fee: \$30

Info: Office of CME, ECU, Box 7224, Greenville 27835-7224. 919/758-5200, ext. 208

February 13-14

Laser Workshop in Neurosurgery

Place: Chapel Hill

Credit: 15 hours Category I AMA

Fee: \$750

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

February 14-15

House Officer Selection

Place: Chapel Hill

Credit: 12 hours Category I AMA

Fee: \$335

Info: W. B. Wood, M.D., 231 MacNider 202H, UNC, Chapel Hill 27514. 919/962-2118

The North Carolina and South Carolina Societies of Pathologists Joint Winter Meeting and Annual Shelley Memorial Lecture and Diagnostic Slide Seminar will be held at the Charlotte Memorial Hospital and Medical Center, Charlotte, North Carolina, on Saturday, February 1, 1986.

The guest lecturer will be Dr. Joseph Eggleston, Professor of Pathology and Director of Surgical Pathology at the Johns Hopkins Hospital, Baltimore, Maryland.

The title of the lecture is "In Search of Small Cell Carcinoma of the Lung" and will be presented at 10:00 a.m.

Afternoon Diagnostic Slide Seminar on lung lesions 2:00-5:00 p.m. Banquet at 7:00 p.m.

For further information, call Dr. Marie-Claire Marroum at 704/338-2251.

OUT OF STATE

January 24-26

Winter Conference on Geriatrics

Place: Hot Springs, VA

Info: Mary Anna Hendley, NC Academy of Family Physicians, Box 20146, Raleigh 27619. 919/781-6467

February 1-5

Dermatology for Non-Dermatologists

Place: Acapulco, Mexico

Info: Division of Dermatology, Box 3135, DUMC, Durham 27710. 919/684-2504

February 1-8

Urologic Update

Place: Vail, CO

Credit: 25 hours Category I AMA

Info: Linda Mace, Box 3707, DUMC, Durham 27710. 919/684-8111

February 21-23

1986 Annual Meeting and Scientific Session, Virginia Chapter, AAP and The Virginia Pediatric Society

Place: Williamsburg, VA

Credit: 15 hours Category I AMA

Info: Betti Prentice, 804/643-8130

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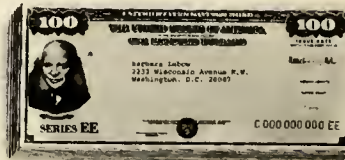
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Letters to the Editor

More Medical Words

To the Editor:

A few months ago we catalogued a collection of patients' medical malapropisms, nonstandard dialect and slang terms.¹ A number of readers subsequently forwarded to us some of the terms they have heard being used in medical settings.* Several contributors independently suggested an additional subclassification: medical transcription malapropisms, *perineal plastic syndrome* and *Highland membrane disease*, for example. Another physician proposed the topic of horrors emerging from punctuation-free nursing notes (e.g., "Large foul green stool seen walking down the hall"). We have not, however, investigated any of these subclassifications further.

Since the preparation of our initial lexicon, James D. Thomas has written about some of the problems faced by members of the American subculture of Gypsies as they interact with the health care system and some of the particular medical terms used by them.² Thomas' work complements that of Snow, who focuses on the problems germane to some Black Americans in similar settings.³ We have also read an essay by F. Gonzalez-Crussi which makes reference to several hundred colloquial terms used to describe male genitalia.⁴ It is our purpose here to present the terms submitted to us along with some additional ones recently discovered by the first author. As in the previous collection of medical terms, patient medical talk is divided into the two categories of *Malapropism* and *Slang and Nonstandard Dialect*. In the former, standard medical terminology is mispronounced, becoming confused with other items of standard English vocabulary; in the latter, terms may be particular to a certain region or subculture.

Malapropisms

Article Artery

Arthrititis Arthritis

Babygel Basogel

goutch Gout

Insensitive Care Unit Intensive Care Unit

Intentional Care Intensive Care

janitor Vagina

Old Timers' Disease Alzheimer's Disease

pajamal itch Vaginal itch

penicillium Penicillin

pinwheels Pinworms

Primavera Provera

pulse Pus

subscription Prescription

sulfur Sulfonamide

TAP smear PAP smear

technical shot Tetanus shot

tenderlitis Tendonitis

tentacles Testicles

thrash Thrush

wheazels in the chest Wheezes; specifically asthmatic

whelps Welts or urticaria

wound Womb

Slang and Nonstandard Dialect

clap Urethral discharge due to gonorrhea

cold Mucus

grimes Groin

hair cut Chancere

heart dropsy Swelling of the ankles due to heart failure

hunya Hernia

kidney hurting Dysuria

knots Lymph nodes

lambooda Libido

leaders Tendons or ligaments, especially in the neck

loose bowels Diarrhea

migran headaches Migraine headaches

phlegm Upper respiratory tract infection

pocketbook Vagina

poor in blood Anemia

punish Pain (as in "It punishes me right smart")

sexin To have sexual intercourse with

side pleurisy Any thoracic wall pain

suage down 1. Loss of edema or swelling 2. Lose weight

sumpin' tee Anorexia (perhaps from, "something to eat")

tired blood Malaise

whites, the Vaginal discharge

References

1. Sugarman J, Butters RR. Understanding the patient: medical words the doctor may not know. NCMJ 1985;46:415-17.
2. Thomas JD. Gypsies and American medical care. Ann Intern Med 1985;102:842-45.
3. Snow LF. Folk medical beliefs and their implications for care of patients: a review based on studies among Black Americans. Ann Intern Med 1974;81:82-96.
4. Gonzalez-Crussi F. Notes of an anatomist. San Diego: Harcourt Brace Jovanovich Pub, 1985:110-29.

Jeremy Sugarman

Ronald R. Butters

Box 2849

Duke Hospital

Durham 27710

To the Editor:

You have probably received hundreds of these since the publication of the list of unusual words used to describe medical conditions. I had heard most of them before, but came across one yesterday that I had never heard before. You may wish to keep this in your files.

An eighty-year-old lady who had grown up down on the eastern coast was describing allergic symptoms of postnasal drip. In describing this, she said that sometimes she felt her "Sunday tongue" was down all the way to the bottom of her throat. We discussed this a little while longer and it

*Contributors were the following people: Junius W. Davis, Hester Giddings, Jared Goldstein, James L. Mathis, Bruce K. Morgan, George Olt, James G. Peden, Adrena J. Perry, Marilyn Telen, John L. Weinerth, J. W. Wright, and Richard C. Zahn.

was perfectly clear that what she was describing was a boggy uvula related to allergic sinusitis.

I have enjoyed the *Journal* very much over the years, and in particular the recent immense improvement in the entire operation. Keep up the good work and thank you for devoting so much of your time to this concern.

Margaret Nelsen Harker, M.D.
Morehead City 28557

It's Still Hard to Make a Living

To the Editor:

Not that long ago the *Journal*¹ was kind enough, perhaps lacking copy shortly before deadline, to publish some meditations of mine about how hard it can be for some people to make a living. Floyd Rogers, a talented reporter for the *Winston-Salem Journal*, read the article and decided that it held promise for a news story. We discussed the matter by phone and then over coffee and I deluged him with reprints about obscure occupational hazards and the like as well as telling him more about the history of occupational disease than he really needed to know.

A few Sundays later his story appeared,² rather less pedantic and more sprightly than becomes a medical academic but as it turned out better attuned to the vulgar ear. That very night, someone from a press service in the north called me about midnight for an interview since I now apparently qualified as a medical expert. Struggling out of sleep I sought, without sounding surly, to answer questions which he really seemed to have already answered himself.

During the next few weeks I received phone calls from friends, clippings from our Office of Information and from other friends and even a copy of an editorial from the newspaper in my wife's hometown, Shelby, accusing me ever so gently of pulling the public leg. Since some of the calls came from people I had never heard of who had suffered from Honda hip and other anatomic insults, I wrote a letter to the editor so that my wife's friends wouldn't think that I made a habit of perpetrating hoaxes. And when a Honda dealer reported that he had had customers complain of similar troubles I felt even better about the matter. My patient who suffered that syndrome in the first place recently returned for his annual physical and reported that he is still symptom-free and that he enjoyed vicarious, if anonymous, pleasure in recognizing his medical past in print. He also reminded me that it had been a Honda Accord, not a Civic, which had led to his distress.

Others called too, seeking medical advice for themselves and their friends, victims of a variety of pedestrian difficulties. A helicopter designer even called from Fort Worth because the story had appeared in a Dallas newspaper. It seems that cockpits of helicopters are in need of being redesigned because of technological advances and because veteran helicopter pilots get all sorts of aches and pains from sitting at the controls for long periods. Sadly I could offer no constructive suggestions although it occurred to me later that medical institutions featuring heliports might require expert personnel, or personnel which would become expert in a short time, and would be happy to publicize their efforts in the air by trotting out their authorities for him.

To my knowledge versions of the story appeared in

newspapers in Asheville, Charlotte, Statesville, Rocky Mount, Salisbury, Boone, Shelby, Greenville, New Bern, Chapel Hill, Durham, Henderson, and Gastonia, NC; Columbia and Myrtle Beach, SC; Birmingham, Houston, Dallas, Richmond, Cincinnati, Reading, PA and Jonesboro, AR. So for a brief moment both the *Journal* and I had a bigger audience than usual. My transient celebrity was pleasant but I wouldn't want to make it a habit.

John H. Felts, M.D.
Bowman Gray School of Medicine
Winston-Salem 27103

References

1. Felts JH. Sometimes it's tough to make a living. *NC Med J* 1985;46:195.
2. Rogers F. Honda hip no fun, but chicken packer's hands is serious. *Winston-Salem Journal* May 5, 1985:A17.

Still Following Family Medicine

To the Editor:

I read with interest Dr. Estes' editorial "Family Medicine at Duke: A Followup" in the September 1985 issue of the *NCMJ*. I am pleased that the subsequent development of the East Carolina University School of Medicine proves Dr. Estes' chauvinistic 1973 comments wrong: "The usual answer is 'But that's not Duke's role! Let East Carolina do it.' It is a difficult job, but that should certainly be no justification for assigning that task to a school less capable than Duke."

North Carolina is fortunate to have four excellent medical schools with different attributes. East Carolina may not perform some activities such as basic science research, at the same level as Duke. However, East Carolina has filled needs that Duke and other institutions were unable to fill, in part by establishing a regional medical center in a previously underserved area. And it has done so with excellence. As an alumnus of both Duke and East Carolina, I have seen the strengths of both institutions, which are different. I am proud to have attended both schools and do not feel that my years at East Carolina were spent at "a school less capable than Duke," just at a school serving a much different purpose than Duke.

Kenneth E. Olive, M.D.
Chief Medical Resident
Wright-Patterson AFB, Ohio 45433

To the Editor:

The editorial by Dr. E. Harvey Estes, Jr., "Family Medicine at Duke: A Follow-Up," in your journal of September 85 causes me some concern. About two months ago in your journal under the classified ads, there was a solicitation for a family practice physician to join a clinic in the middle part of our state with a starting salary of \$72,000 per year or 50% of the gross, whichever would be the larger. To support the proliferation of family medicine physicians on a financial basis is rather ludicrous. I have been in medicine for thirty years and in private practice for nine and one half years. I am one of three neurologists who practice together at the Durham Clinic. I do not make \$72,000 a year after thirty years in practice and being in a subspecialty. Are they really going to try and tell me that starting a brand new family practitioner at \$72,000 a year is

the way to save society money? It has been my experience over the last nine years that family practitioners often complain about the "exorbitant fees" charged by subspecialists for consultations and then turn around and walk to the bank with a larger check each month than many of the subspecialties in this area.

As of twelve months ago — and I don't have more recent data — a return appointment to the Family Medicine Center here in Durham cost at least as much if not more than a return visit to see one of the three neurologists here in Durham. I find it difficult to consider that to be "cost effective."

I think family medicine will save society money much as the "compact cars" do today. Unfortunately medicine is much like most of our other big businesses in the United States; the attitude is one of "let the other guy save money."

A. W. Renuart, M.D.
1830 Hillandale Road
Durham 27705

The author responds:

Dr. Olive's comments are welcomed. Remember that the comment he cites was written in 1973, and was made to an audience of those who held such views. He is correct, we do have four excellent medical schools. Each is different. We have every reason to be proud of East Carolina, which does take its role seriously, and is particularly supportive of family medicine. I can assure Dr. Olive that I respect and admire ECU for its social responsibility to its region. It is a model for us all!

I can assure Dr. Renuart that the starting salary example he cites is a bit atypical, but it does underscore the fact that family physicians are in demand. It is also not unusual to find starting salaries in smaller communities higher than those in more crowded locations such as Durham. I cannot comment on the relative cost of visits to family physicians and neurologists, since I have no data for comparison.

E. Harvey Estes, Jr., M.D.
Division of Family Medicine
Duke University Medical Center
Durham 27710

Dr. Quigless Takes on Blue Cross Blue Shield

Dr. Mr. Rose,

After the courtroom victory of Massachusetts Blue Cross Blue Shield over the Massachusetts Medical Society on the issue of Balance Billing, I am not surprised to receive your recent information packet on the COST CARE PROGRAM OF NORTH CAROLINA BLUE CROSS BLUE SHIELD. I, and perhaps many other North Carolina physicians in private practice, consider this proposal of yours to be no less than a declaration of war between your corporation and our profession.

Private practice physicians have taken the lead in the initiation of needed cost containment measures such as outpatient surgery, preadmission certification and second surgical opinions. We respond to the needs of the poor and elderly through the Medicare and Medicaid programs by providing the highest level of care at reduced rates. We willingly submit to the PRO restraints for the sake of cost

containment, but fight to maintain quality of care for our patients. We staff emergency rooms and clinics where we consider our treatment of the indigent to be our duty under the Hippocratic Oath.

I cannot participate in your Cost Care Program. In fact, I find it necessary to oppose the institution of the program and I expect your corporation to suffer by my opposition. Massachusetts Blue Cross Blue Shield insures 70% of their eligible population. In the more competitive environment of our state, you only insure about 30% of those eligible. You lost the State Employee's contract. After three years your Personal Care Plan is still in the red; yet, you would essentially declare war on the physicians of this state from your obviously weak position.

You propose to tie physician fees to the Consumer Price Index at a time when our greatest economic worry is the malpractice insurance crisis which threatens to erode our financial positions as physicians to a far greater extent than inflation. You would hope to limit our income at a time when physicians finishing residencies are 28-35 years old with educational debts in the range of \$100,000 or more.

Blue Cross Blue Shield was formed by physicians in the 1930's to protect the health care consumer from catastrophic health care bills. Over the years, trusting physicians allowed administrators such as yourself to become the caretakers of health care financing. Now, we are forced to retake the position of guardian of health care costs and finances from you. We are doing this by the creation of physician owned and operated Independent Practice Associations.

Mr. Rose, in my opinion, your corporation has little to offer to the doctor or the patient in the present competitive environment. Through our IPAs we physicians will regulate our own fees with no necessity for your continued assistance.

Milton D. Quigless, Jr., MD, FACS
Box 14445
Raleigh 27620

Mr. Rose responds:

I am writing in response to your invitation to comment on a letter from Dr. Milton D. Quigless, Jr. in which he expresses his views on the participating doctor program developed by Blue Cross and Blue Shield of North Carolina. I regret that he feels he cannot join other doctors and the Plan in this cost containment effort, but recognize that such is his privilege.

This program is another important step in our continuing efforts to support health care cost containment. The Plan's contribution to health care economics has evolved on two fronts: concerted actions to incorporate incentives in employee benefit programs to encourage subscribers' participation in cost containment; among institutional providers, programs designed to move inappropriate hospital-based services to ambulatory settings.

Now, we are asking doctors to join Blue Cross and Blue Shield of North Carolina voluntarily in making quality health care available at an affordable cost.

Our goals in designing the reimbursement system to be put into effect January 1, 1986 were to address employer concerns over the predictability of health care cost in-

creases; to improve our position in a highly competitive market; and to maintain the integrity of the private health sector.

In initiating the program, we employed methods to ensure a fair and equitable method of reimbursement. Blue Cross and Blue Shield of North Carolina solicited input from practicing North Carolina doctors and from similar reimbursement programs in operation in 61 other Blue Shield Plans.

To maintain the program, we will conduct regular reviews of special needs of doctors, including malpractice insurance, through advisory groups of participating doctors, and consider appropriate changes based upon their recommendations. In addition, these groups will review the Plan's fairness in administering the participating doctor program.

Previous cost containment programs have not sacrificed the quality of care in our state. Likewise, the participating doctor program does not affect the level of benefits for health care services or limit medically necessary health care services.

The participating doctor program, as a reimbursement system, only affects the mechanism of benefit payment. Though our program seemingly shares similarities with other systems affecting the financing of health care, it must be reviewed on its own merits.

Included in those merits is the method for determining

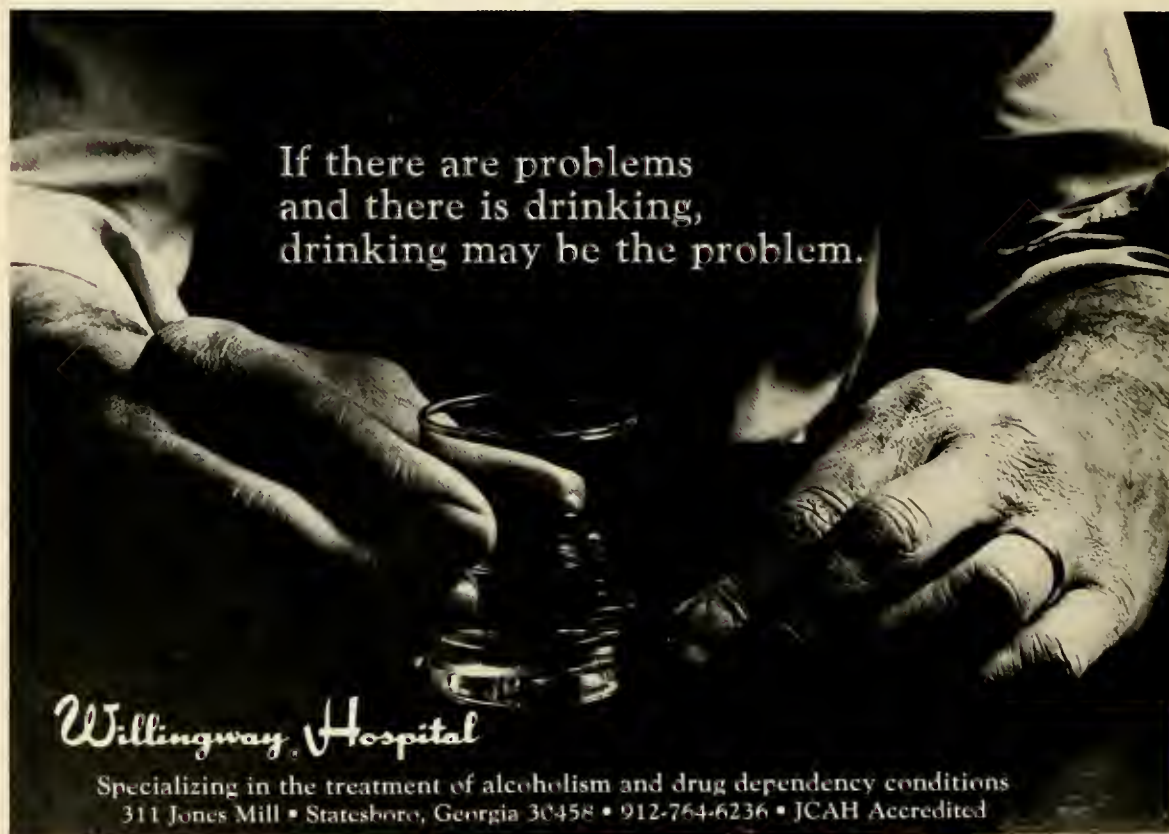
the maximum allowable. We computed this maximum at the 90th percentile of all doctors' charges. We linked fee increases to the all-items Consumer Price Index (CPI) to sustain the predictability of reimbursement increases as well as increases in rates for health insurance premiums. As noted above, special consideration will be given those factors which would impose unique costs upon doctors.

We have established a team of professional relations representatives across the state whose primary function will be to serve participating doctors by addressing any administrative concerns they may have.

As part of the Plan's contract, we provided a cancellation clause so doctors are not locked into participation. To support the success and savings potential of the program, we necessarily included a direct payment incentive for participation.

The decision to participate is an individual choice of the state's doctors. Each doctor should judge the program's impact on his or her practice. We invite North Carolina doctors to assist in making affordable health care protection available for the subscribers of Blue Cross and Blue Shield of North Carolina.

Thomas A. Rose
President, Blue Cross Blue Shield
Box 2291
Durham 27702



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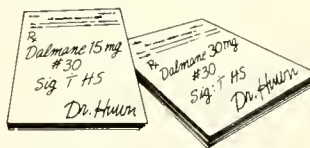
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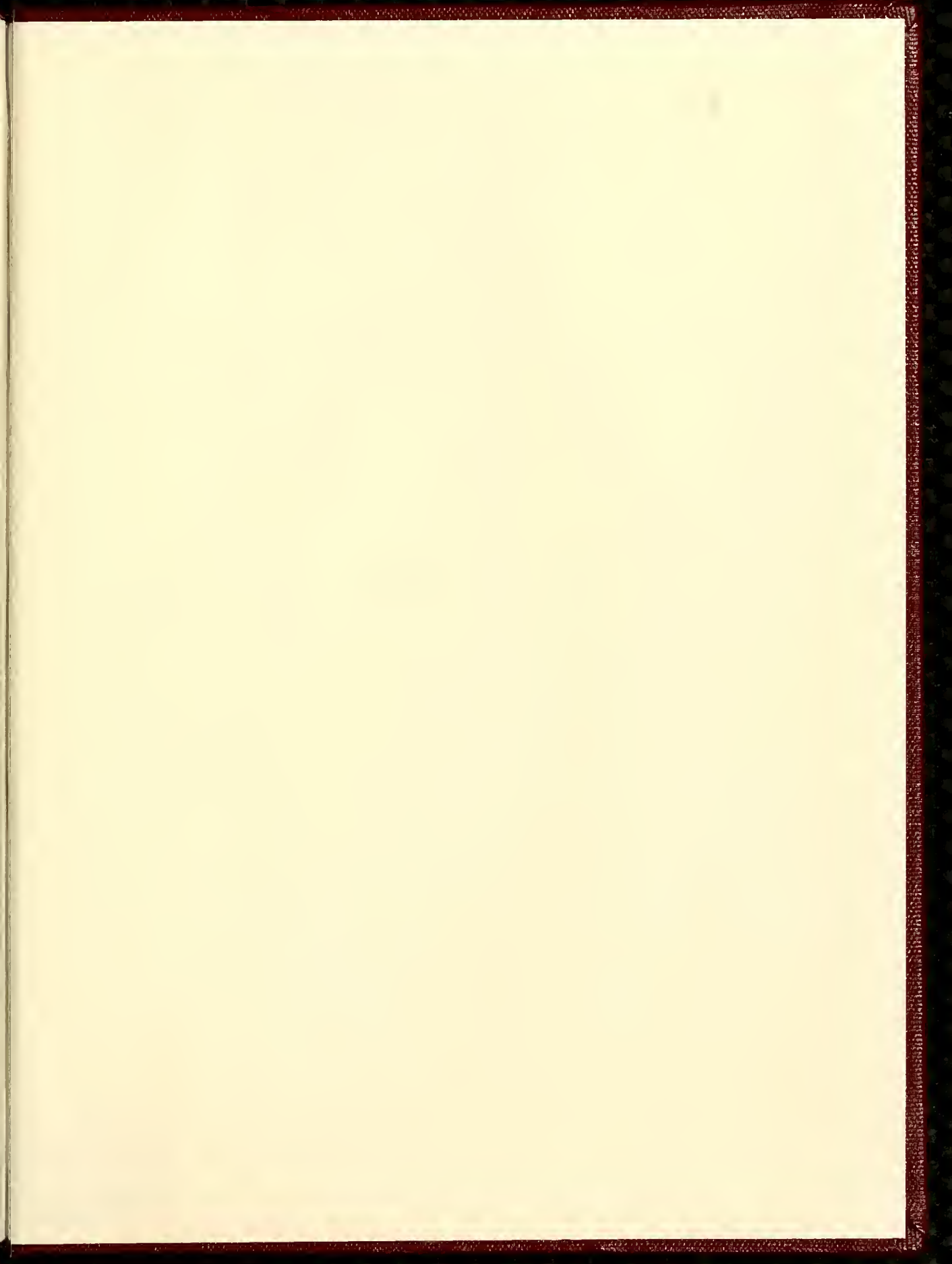


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